

**Title 10--DEPARTMENT OF
NATURAL RESOURCES
Division 20--Clean Water Commission
Chapter 7--Water Quality**

10 CSR 20-7.031 Water Quality Standards. The department is amending sections (1), (3), (4), (5), (12) of this rule.

10 CSR 20-7.031 Water Quality Standards

PURPOSE: This rule identifies uses of waters of the state, criteria to protect those uses, and defines the antidegradation policy. It is developed in response to the Missouri Clean Water Law and the federal Clean Water Act, Section 303(c)(1) and (2), which requires that state water quality standards be reviewed at least once every three (3) years. These revisions are pursuant to the national goal of protection of fish, shellfish, and wildlife and recreation in and on the water as outlined in Section 101(a)(2) of the Act.

PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.

(1) Definitions.

(A) Acute toxicity—Conditions producing adverse effects or lethality on aquatic life following short-term exposure. The acute criteria in Tables A and B are maximum concentrations which protect against acutely toxic conditions. Acute toxicity is also indicated by exceedence of whole-effluent toxicity (WET) test conditions of paragraph (4)(I)2. For substances not listed in Table A or B, three-tenths (0.3) of the median lethal concentration, or the no observed acute effect concentration for representative species, may be used to determine absence of acute toxicity.

(B) Aquifer—A subsurface water-bearing bed or stratum which stores or transmits water in recoverable quantities that is currently being used or could be used as a water source for private or public use. It does not include water in the vadose zone.

(C) Designated uses—Uses specified for each water body whether or not they are being attained. Uses are designated according to section (2) of this rule and include, but are not limited to—

1. Protection and propagation of fish, shellfish and wildlife. Streams will be designated to one of the following aquatic habitat protection uses based on watershed size, scale within the stream network and other hydrological and physical data. Lakes and reservoirs will be designated to one of the following aquatic habitat protection uses based on limnological characteristics (such as temperature) and biological assemblages.

A. Warm Water Habitat (WWH)—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of warm-water biota. {

- (I) /Warm water habitat (/Great River/);
- (II) /Warm water habitat (/Large River/);
- (III) /Warm water habitat (/Small River/);
- (IV) /Warm water habitat (/Creek/);
- (V) /Warm water habitat (/Headwater/); and/
- (VI) /Warm water habitat (/Lake or reservoir/).

B. Cool Water Habitat (CLH)—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of cool-water biota. These waters can support a sensitive, high-quality sport fishery (i.e., smallmouth bass and rock bass). {

- (I) /Cool water habitat (/Large River/);
- (II) /Cool water habitat (/Small River/);
- (III) /Cool water habitat (/Creek/);
- (IV) /Cool water habitat (/Headwater/); and/
- (V) /Cool water habitat (/Lake or reservoir/).

C. Cold Water Habitat (CDH)—Waters in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of cold-water biota. These waters can support a naturally reproducing or stocked trout fishery and populations of other cold-water species. {

- (I) /Cold water habitat (/Large River/);
- (II) /Cold water habitat (/Small River/);
- (III) /Cold water habitat (/Creek/);
- (IV) /Cold water habitat (/Headwater/); and/
- (V) /Cold water habitat (/Lake or reservoir/).

D. Ephemeral Aquatic Habitat (EAH)–Waters having surface flow or pools in response to precipitation events or snow melt, but without permanent surface flow or permanent pools; naturally-occurring water quality and habitat conditions may allow the maintenance of a limited or transient community of aquatic biota.

E. Modified Aquatic Habitat (MAH)–Waters in which natural habitat conditions have been physically, chemically or biologically modified; habitat and resulting water quality conditions may prevent the maintenance of a wide variety or diversity of aquatic biota.

F. Limited Aquatic Habitat (LAH)–Waters in which natural habitat conditions have been substantially and irretrievably altered; habitat and resulting water quality conditions do not allow maintenance of aquatic biota, or if present, the community is of poor variety or diversity.

2. Recreation in and on the water. Assignment of these uses does not grant an individual the right to trespass.

A. Whole body contact recreation (WBC)–Activities involving direct human contact with waters of the state to the point of complete body submergence. The water may be ingested accidentally and certain sensitive body organs, such as the eyes, ears, and the nose, will be exposed to the water. Although the water may be ingested accidentally, it is not intended to be used as a potable supply unless acceptable treatment is applied. Waters so designated are intended to be used for swimming, water skiing, or skin diving.

(I) Category A (WBC-A)–This category applies to waters that have been established by the property owner as public swimming areas welcoming access by the public for swimming purposes and waters with documented existing whole body contact recreational use(s) by the public. Examples of this category include, but are not limited to: public swimming beaches and property where whole body contact recreational activity is open to and accessible by the public through law or written permission of the landowner.

(II) Category B (WBC-B)–This category applies to waters designated for whole body contact recreation not contained within category A.

B. Secondary contact recreation (SCR)–Uses include fishing, wading, commercial and recreational boating, any limited contact incidental to shoreline activities, and activities in which users do not swim or float in the water. These recreational activities may result in contact with the water that is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal.

3. Human health protection (HHP)–Criteria to protect this use are based on the assumption of an average amount of fish consumed on a long-term basis. Protection of this use includes compliance with Food and Drug Administration (FDA) limits for fish tissue, maximum water concentrations corresponding to the 10^{-6} cancer risk level, and other human health fish consumption criteria.

4. Irrigation (IRR)–Application of water to cropland or directly to cultivated plants that may be used for human or livestock consumption. Occasional supplemental irrigation, rather than continuous irrigation, is assumed.

5. Livestock and wildlife protection (LWP)–Maintenance of conditions in waters to support health in livestock and wildlife.

6. Drinking water supply (DWS)–Maintenance of a raw water supply which will yield potable water after treatment by public water treatment facilities.

7. Industrial water supply (IND)–Water to support various industrial uses; since quality needs will vary by industry, no specific criteria are set in these standards.

8. Storm- and flood-water storage and attenuation (WSA)–Wetlands and other waters which serve as overflow and storage areas during flood or storm events slowly release water to downstream areas, thus lowering flood peaks and associated damage to life and property.

9. Habitat for resident and migratory wildlife species, including rare and endangered species (WHP)–Wetlands and other waters that provide essential breeding, nesting, feeding, and predator escape habitats for wildlife including waterfowl, birds, mammals, fish, amphibians, and reptiles.

10. Recreational, cultural, educational, scientific, and natural aesthetic values and uses (WRC)–Wetlands and other waters that serve as recreational sites for fishing, hunting, and observing wildlife; waters of historic or archaeological significance; waters which provide great diversity for nature observation, educational opportunities, and scientific study.

11. Hydrologic cycle maintenance (WHC)–Wetlands and other waters hydrologically connected to rivers and streams serve to maintain flow conditions during periods of drought. Waters that are connected hydrologically to the groundwater system recharge groundwater supplies and assume an important local or regional role in maintaining groundwater levels.

(D) Biocriteria–Numeric values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters that have been designated for aquatic-life protection.

(E) Chronic toxicity–Conditions producing adverse effects on aquatic life or wildlife following long-term exposure but having no readily observable effect over a short time period. Chronic numeric criteria in Tables A and B are maximum concentrations which protect against chronic toxicity; these values shall be considered four- (4-) day averages, with the exception of total ammonia as nitrogen which shall be considered a thirty- (30-) day average. Chronic toxicity is also indicated by exceedence of WET test conditions of subsection (5) (Q). For substances not listed in Table A or B, commonly used endpoints such as the no-observed effect concentration or inhibition concentration of representative species may be used to demonstrate absence of toxicity.

(F) Class–All waters listed in the Missouri Use Designation Dataset and in Table G and Table H of this rule shall have a hydrologic class. During normal flow periods, some rivers back water into tributaries which do not otherwise have a hydrologic

class. These permanent backwater areas are considered to have the same hydrologic class as the water body into which the tributary flows.

1. Class L1—Lakes used primarily for public drinking water supply.

2. Class L2—Major reservoirs.

3. Class L3—Other lakes which are waters of the state. These include both public and private lakes. For effluent regulation purposes, publicly-owned L3 lakes are those for which a substantial portion of the surrounding lands are publicly owned or managed.

4. Class P—Streams that maintain permanent flow even in drought periods.

5. Class P1—Standing-water reaches of Class P streams.

6. Class G—Streams that may cease flow in dry periods but maintain permanent pools which support aquatic life.

7. Class E—Streams that do not maintain permanent surface flow or permanent pools, but have ephemeral surface flow or pools in response to precipitation events.

8. Class W—Wetlands that are waters of the state that meet the criteria in the *Corps of Engineers Wetlands Delineation Manual*, (January 1987), and subsequent federal revisions and supplements. Class W waters do not include wetlands that are artificially created on dry land and maintained for the treatment of mine drainage, stormwater control, drainage associated with road construction, or industrial, municipal, or agricultural waste.

(G) Early life stages of fish—The pre-hatch embryonic period, the post-hatch free embryo or yolk-sac fry, and the larval period during which the organism feeds. Juvenile fish, which are anatomically rather similar to adults, are not considered an early life stage.

(H) Existing uses—Those uses actually attained in the water body on or after November 28, 1975, whether or not they are identified in the water quality standards.]

(I) Ecoregion—Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Bryce, Omernik, and Larsen, 1999).

(J) Epilimnion—Zone of atmospheric mixing in a thermostratified lake.

(K) Escherichia coli (*E. coli*)—A type of fecal coliform bacteria found in the intestines of animals and humans. The presence of *E. coli* in water is a strong indication of recent sewage or animal waste contamination. Sewage may contain many types of disease-causing organisms (pathogens).

(L) Eutrophication—The process by which a body of water becomes enriched in dissolved nutrients, such as nitrogen and phosphorus, that stimulate the excessive growth of algae and other plants. Eutrophication may be accelerated by human activities.

(M) Existing uses—Those uses actually attained in the water body on or after November 28, 1975, whether or not they are identified in the water quality standards.

(N) Hypolimnion—Zone beneath the zone of atmospheric mixing in a thermostratified lake.

(O) Lethal concentration₅₀ (LC₅₀)—Concentration of a toxicant which would be expected to kill fifty percent (50%) of the individuals of the test species organisms in a test of specified length of time.

(P) Losing stream—A stream which distributes thirty percent (30%) or more of its flow during low flow conditions through natural processes, such as through permeable geologic materials into a bedrock aquifer within two (2) miles' flow distance downstream of an existing or proposed discharge. Flow measurements to determine percentage of water loss must be corrected to approximate the 7Q10 stream flow. If a stream bed or drainage way has an intermittent flow or a flow insufficient to measure in accordance with this rule, it may be determined to be a losing stream on the basis of channel development, valley configuration, vegetation development, dye tracing studies, bedrock characteristics, geographical data, and other geological factors. Losing streams are identified/[listed] in the digital geospatial dataset ‘LOSING_STREAM’ developed by the Missouri Department of Natural Resources, Missouri Geological Survey/[Table J]; additional streams may be determined to be losing by the Missouri Department of Natural Resources.

(Q) Low-flow conditions—Where used in this regulation in the context of mixing zones, the low-flow conditions shall refer to the minimum amount of stream flow occurring immediately upstream of a wastewater discharge and available, in whole or in part, for attenuation of wastewater pollutants.

1. Seven- (7-) day, one- (1-) in-ten- (10-) year low flow (7Q10)—The lowest average flow for seven (7) consecutive days that has a probable recurrence interval of once-in-ten (10) years.

2. Sixty- (60-) day, one- (1-) in-two- (2-) year low flow (60Q2)—The lowest average flow for sixty (60) consecutive days that has a probable recurrence interval of once-in-two (2) years.

3. Thirty- (30-) day, one- (1-) in-ten- (10-) year low flow (30Q10)—The lowest average flow for thirty (30) consecutive days that has a probable recurrence interval of once-in-ten (10) years.

4. One- (1-) day, one- (1-) in-ten- (10-) year low flow (1Q10)—The lowest average flow for one (1) day that has a probable recurrence interval of once-in-ten (10) years.

(P/Q) Missouri Use Designation Dataset—A digital geospatial dataset used in conjunction with geographic information systems and maintained by the department. This data set documents the names and locations of the state's rivers, streams, lakes and reservoirs which have been assigned designated uses. The initial version of this dataset, as adopted on November 6, 2013, reflects Tables G and H plus any additional presumptive uses described in section (2). The dataset will also include information regarding both pending and approved determinations, variances, use attainability analyses and water quality standards revisions. The dataset uses the geospatial framework provided by the National Hydrography Dataset and is enhanced and supported by hydrological and physical information obtained through the Missouri Resource Assessment Partnership (MoRAP) and other scientific sources. The dataset is limited in geographic extent to the state of Missouri.

(Q/R) Mixing zone—An area of dilution of effluent in the receiving water beyond which chronic toxicity criteria must be met.

(R/S) National Hydrography Dataset (NHD)—A digital vector dataset used in conjunction with geographic information systems to describe the location of rivers, streams, lakes, reservoirs, and other surface water features. As applied in this rule, the term refers to the 1:100,000 scale dataset generated by the United States Geological Survey. This data set provides the geospatial framework for the Missouri Use Designation Dataset.

(S/T) Outstanding national resource waters—Waters which have outstanding national recreational and ecological significance. These waters shall receive special protection against any degradation in quality. Congressionally-designated rivers, including those in the Ozark national scenic riverways and the wild and scenic rivers system, are so designated (see Table D).

(T/U) Outstanding state resource waters—High quality waters with a significant aesthetic, recreational, or scientific value which are specifically designated as such by the Clean Water Commission (see Table E).

(U/V) Ozark streams—Streams lying within the Ozark faunal region as described in the *Aquatic Community Classification System for Missouri, 1989, Aquatic Series No. 19*, Missouri Department of Conservation, Jefferson City, MO 65109, [1989] which is hereby incorporated by reference and does not include any later amendments or additions. The department shall maintain a copy of the referenced documents and shall make them available to the public for inspection and copying at no more than the actual cost of reproduction.

(V/W) Reference lakes or reservoirs—Lakes or reservoirs determined by Missouri Department of Natural Resources to be the best available representatives of ecoregion waters in a natural condition with respect to habitat, water quality, biological integrity and diversity, watershed land use, and riparian conditions.

(W/X) Reference stream reaches—Stream reaches determined by the department to be the best available representatives of ecoregion waters in a natural condition, with respect to habitat, water quality, biological integrity and diversity, watershed land use, and riparian conditions.

(X/Y) Regulated-flow streams—A stream that derives a majority of its flow from an impounded area with a flow-regulating device.

(Y/Z) Use Attainability Analysis (UAA)—A structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g).

(Z/AA) Variance—A temporary modification to 10 CSR 20-7.031 that is deemed necessary in accordance with section (12) of this rule.

(AA/BB) Water effect ratio—Appropriate measure of the toxicity of a material obtained in a site water divided by the same measure of the toxicity of the same material obtained simultaneously in a laboratory dilution water.

(BB/CC) Water hardness—The total concentration of calcium and magnesium ions expressed as calcium carbonate. For purposes of this rule, hardness will be the median [determined by the lower quartile (twenty-fifth percentile)] value of a representative number of samples from the water [body] in question or from [a] similar waters [body] at the appropriate stream flow conditions **within the same ecoregion**.

(CC/DD) Water quality criteria—Chemical, physical, and biological properties of water that are necessary to protect beneficial water uses.

(DD/EE) Waters of the state—**As defined in section 644.016 RSMo** [All rivers, streams, lakes, and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state which are not entirely confined and located completely upon lands owned, leased, or otherwise controlled by a single person or by two (2) or more persons jointly or as tenants in common and includes waters of the United States lying within the state].

(EE/FF) Wetlands—Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. This definition is consistent with both the United States Army Corps of Engineers wetlands definition at 33 CFR 328.3(b) and the United States Environmental Protection Agency wetlands definition at 40 CFR 232.2(r).

(FF/GG) Whole effluent toxicity tests—A toxicity test conducted under specified laboratory conditions on specific indicator organisms. To estimate chronic and acute toxicity of the effluent in its receiving stream, the effluent may be diluted to simulate the computed percent effluent at the edge of the mixing zone or zone of initial dilution.

(GG/HH) Zone of initial dilution—A small area of initial mixing below an effluent outfall beyond which acute toxicity criteria must be met.

(HH/II) Zone of passage—A continuous water route necessary to allow passage of organisms with no acutely toxic effects produced on their populations.

(II/JJ) Other definitions—As set forth in the Missouri Clean Water Law and 10 CSR 20-2.010 shall apply to terms used in this rule.

(2) Designation of Uses.

(A) Rebuttable presumption. Consistent with the presumptive beneficial use protections described by 40 CFR Part 131 and section 101(a)(2) of the federal Clean Water Act—

1. All perennial rivers and streams;
2. All streams with permanent pools;

3. All rivers and streams included within the 1:100,000 scale National Hydrography Dataset (NHD) described in subsection (1)(R) of this rule; and

4. All lakes and reservoirs that intersect the flow lines of rivers and streams identified in paragraph (2)(A)3. of this rule, shall be presumed to support the following designated uses: Aquatic habitat protection; Human health protection; Whole body contact recreation – Category B; and Secondary contact recreation, as defined in this rule. This presumption is rebuttable subject to demonstration based on use attainability analyses as described in subsection (2)(F) of this rule.

(B) Presumed Uses. All waters described in subsection (2)(A) shall also be assigned Livestock and wild life protection and Irrigation designated uses, as defined in this rule.

(C) Other Uses. Use designations other than those mentioned in subsections (2)(A) and (2)(B) of this rule may be applied to waters identified in subsection (2)(A), Table G and Table H of this rule on a site-specific, case-by-case basis following approval by the Clean Water Commission and U.S. Environmental Protection Agency.

(D) Use Designation. Uses of waters shall be designated as follows:~~F~~

1. Designated uses applied to individual water bodies or stream segments pursuant to subsections (2)(A) through (2)(C) of this rule shall include those identified in Tables G and H and in the Missouri Use Designation Dataset maintained by the department, except as described in paragraph (2)(D)3. of this rule.

2. Designated uses may be assigned on a case-by-case basis to water bodies or stream segments not otherwise represented in Tables G and H or in the Missouri Use Designation Dataset but falling within the jurisdiction of the Missouri Clean Water Law.

3. Assuming reasonable evidence, presumptive beneficial use protections described above shall not apply to water bodies without designated uses pursuant to Tables G or H prior to November 6, 2013 that meet one of the following criteria:

A. Waste treatment systems, or prior converted cropland, which are excluded from the federal definition of “waters of the United States” under 40 CFR 122.2; or

B. Man-made structures which were constructed solely to treat or convey wastewater; or

C. Man-made bodies of water or structures which lack perennial flow and were constructed to treat, convey, or temporarily hold or slow stormwater following precipitation events (this may include certain structures associated with Best Management Practices such as sediment basins, wet and dry detention basins, bioretention basins, rain gardens, bioswales, etc.); or

D. Water bodies that lack jurisdiction under either the federal Clean Water Act or Missouri Clean Water Law.

After receiving such evidence, the department shall make a written determination regarding the applicability of the above-described presumptions, and such determination shall be subject to appeal pursuant to section 621.250, RSMo.

(E) Missouri Use Designation Dataset. The department shall maintain the geospatial dataset described in subsection (1)(P) of this rule. Future revisions to water quality standards in the State of Missouri shall be reflected in the Missouri Use Designation Dataset and shall take effect upon approval by the Clean Water Commission and U.S. Environmental Protection Agency.

(F) Use Attainability. Demonstrations of use attainability for the protection of fish, shellfish and wildlife, recreation in and on the water, or human health protection shall assess the physical, chemical, biological, economic or other factors affecting the attainment of a use pursuant to 40 CFR 131.10(g). Use attainability analyses intended for other designated uses shall be designed and implemented on a case-by-case basis. In accordance with 40 CFR 131.10(j), the following potential actions must be preceded and supported by a use attainability analysis:

1. Designation of a water body for uses that do not include the protection of fish, shellfish and wild life, recreation in and on the water, and human health protection;

2. Removal of one or more of the uses identified in paragraph 1. of this section; or

3. Application of any use sub-categories for the protection of fish, shellfish and wildlife, recreation in and on the water, or human health protection which require less stringent criteria.

After receiving such demonstration, the department shall make a written determination regarding the use attainability analysis, and such determination shall be subject to appeal pursuant to section 621.250, RSMo.

(3) Antidegradation. The antidegradation policy shall provide three (3) levels of protection.

(A) Tier One. Public health, existing in-stream water uses, and a level of water quality necessary to protect existing uses shall be maintained and protected.

(B) Tier Two. For all waters of the state, if existing water quality is better than applicable water quality criteria established in these rules, that existing quality shall be fully maintained and protected. Water quality may be lowered only if the state finds, after full satisfaction of the intergovernmental coordination and public participation requirements, that the lowered water quality is necessary to allow important economic and social development in the geographical area in which the waters are located. In allowing the lowering of water quality, the state shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control before allowing any lowering of water quality. This provision allows a proposed new or modified point or nonpoint source of pollution to result in limited lowering of water quality provided that—

1. The source does not violate any of the general criteria set forth in section (4/3) of this rule, or any of the criteria for protection of beneficial uses set forth in section (5/4) of this rule;
2. The source meets all applicable technological effluent limitations and minimum standards of design for point sources or minimum pollution control practices for nonpoint sources; and
3. The lowering of water quality, in the judgment of the department, is necessary for the accommodation of important economic and social development in the geographical vicinity of the discharge. In making a preliminary determination based on socioeconomic development considerations, the department may consider the potential for regional increases in utility rates, taxation levels, or recoverable costs associated with the production of goods or services that may result from the imposition of a strict no-degradation policy. Consideration may also be given to the possible indirect effects of a policy on per capita income and the level of employment in the geographical vicinity of the proposed pollution source. Any preliminary decision by the department to allow a limited lowering of water quality will be stated as such in a public notice issued pursuant to 10 CSR 20-6.010. Pursuant to that provision, a public hearing will be held in the geographical vicinity of the proposed pollution source, if the department determines there is significant public interest in and need for a hearing.

(C) Tier Three. There shall be no lowered water quality in outstanding national resource waters or outstanding state resource waters, as designated in Tables D and E.

(D) The three (3) levels of protection provided by the antidegradation policy in subsections (A) through (C) of this section shall be implemented according to procedures hereby incorporated by reference and known as the "Missouri Antidegradation Rule and Implementation Procedure, [May 2, 2012] July 13, 2016." No later amendments or additions are included. This document shall be made available to anyone upon written request to the Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, PO Box 176, Jefferson City, MO 65102-0176.

(4) General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly, or harmful bottom deposits or prevent full maintenance of beneficial uses;

(B) Waters shall be free from oil, scum, and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses;

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal, or aquatic life. **However, acute toxicity may be allowed by permit in zones of initial dilution, and chronic toxicity may be allowed by permit in mixing zones;**

(E) Waters shall maintain a level of water quality at their confluences to downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including waters of another state.

(F) There shall be no significant human health hazard from incidental contact with the water;

(G) There shall be no acute toxicity to livestock or wildlife watering;

(H) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community;

(I) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment, and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to sections 260.200–260.247, RSMo;

(J) Waters in mixing zones, ephemeral aquatic habitat and waters of the state lacking designated uses shall be subject to the following requirements:

1. The acute toxicity criteria of Tables A and B and the requirements of subsection (5)(B); and

2. The following whole effluent toxicity conditions must be satisfied:

A. Single dilution method. The percent effluent at the edge of the zone of initial dilution will be computed and toxicity tests performed at this percent effluent. These tests must show statistically-insignificant mortality on the most sensitive of at least two (2) representative, diverse species; and

B. Multiple dilution method. An LC₅₀ will be derived from a series of test dilutions. The computed percent effluent at the edge of the zone of initial dilution must be less than three-tenths (0.3) of the LC₅₀ for the most sensitive of at least two (2) representative, diverse species.

(5) Specific Criteria. The specific criteria shall apply to waters contained in Tables G and H of this rule and the Missouri Use Designation Dataset. Protection of drinking water supply is limited to surface waters designated for raw drinking water supply and aquifers. Protection of whole body contact recreation is limited to waters designated for that use.

(A) The maximum chronic toxicity criteria in Tables A and B shall apply to waters designated for the indicated uses given in the Missouri Use Designation Dataset and Tables G and H, except for waters designated for *Ephemeral Aquatic Habitat or where less stringent criteria have been developed following a use attainability analysis*. All Table A and B criteria are chronic toxicity criteria, except those specifically identified as acute criteria. Water contaminants shall not cause or contribute to concentrations in excess of these values. Table A values listed as health advisory levels shall be used in establishing discharge permit limits and management strategies until additional data becomes available to support alternative criteria, or other standards are established. However, exceptions may be granted in the following cases:

1. Permanent flow streams when the stream flow is less than 7Q10;

2. Regulated flow streams if the flow is less than the minimum release flow agreed upon by the regulating agencies;

3. For the natural and unavoidable chemical and physical changes that occur in the hypolimnion of lakes. Streams below impoundments shall meet applicable specific criteria;

4. For mixing zones.

A. The mixing zone shall be exempted from the chronic criteria requirements of this section for those components of waste that are rendered nontoxic by dilution, dissolution, or rapid chemical transformation. Acute numeric criteria of Tables A and B and whole effluent acute toxicity requirements of subsection (4)(I) must be met at all times within the mixing zone, except within the zone of initial dilution. The following criteria do not apply to thermal mixing zones. Criteria for thermal mixing zones are listed in paragraph (5)(D)6.

B. The maximum size of mixing zones and zones of initial dilution will be determined as follows (the size may be refined by the use of mixing zone models, e.g. CORMIX, as appropriate):

(I) Streams with 7Q10 low flows of less than one-tenth cubic foot per second (0.1 cfs)—[;]

(a) Mixing zone—not allowed; and

(b) Zone of initial dilution—not allowed . [;]

(II) Streams with 7Q10 low flow of one-tenth to twenty cubic feet per second (0.1–20 cfs)—

(a) Mixing zone—one-quarter (1/4) of the stream width, cross-sectional area, or volume of flow; length one-quarter (1/4) mile. If the discharger can document that rapid and complete mixing of the effluent occurs in the receiving stream, the mixing zone may be up to one-half (1/2) of the stream width, cross-sectional area, or volume of flow; and

(b) Zone of initial dilution—one-tenth (0.1) of the mixing zone width, cross-sectional area, or volume of flow.[;]

(III) Streams with 7Q10 low flow of greater than twenty cubic feet per second (20 cfs)—

(a) Mixing zone—one-quarter (1/4) of stream width, cross-sectional area, or volume of flow; length of one-quarter (1/4) mile. **If the discharger can document that rapid and complete mixing of the effluent occurs in the receiving stream, the mixing zone may be up to one-half (1/2) of the stream width, cross-sectional area, or volume of flow; and**

(b) Zone of initial dilution—one-tenth (0.1) of the mixing zone width, cross-sectional area, or volume of flow and no more than ten (10) times the effluent design flow volume unless the use of diffusers or specific mixing zone studies can justify more dilution.[; and]

(IV) Lakes.[;—

(a) Mixing zone—not to exceed one-quarter (1/4) of the lake width at the discharge point or one hundred feet (100') from the discharge point, whichever is less; **and**[.]

(b) Zone of initial dilution—not allowed.

C. A mixing zone shall not overlap another mixing zone in a manner that the maintenance of aquatic life in the body of water in the overlapping area would be further adversely affected.

D. Other factors that may prohibit or further limit the size and location of mixing zones are the size of the river, the volume of discharge, the stream bank configuration, the mixing velocities, other hydrologic or physiographic characteristics, and the designated uses of the water, including type of aquatic life supported, potential effects on mouths of tributary streams, and proximity to water supply intakes.

E. Zones of passage must be provided wherever mixing zones are allowed.

F. Mixing zone and zone of initial dilution size limits will normally be based on streams at the 7Q10 low flow. However, this percent of stream size limits also applies at higher stream flows and discharge limitations may be based on higher stream flows if discharge volume or quality may be adjusted to correlate with stream flow; and

5. For wetlands. Water quality needs will vary depending on the individual characteristics of the wetland. Application of numeric criteria will depend on the specific aquatic life, wildlife, and vegetation requirements.

A. Specific criteria for wetlands shall be developed using scientific procedures including, but not limited to, those procedures described in the U.S. Environmental Protection Agency's *Water Quality Standards Handbook*, Second Edition, August 1994 as published by the Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC 20460, which are hereby incorporated by reference and do not include any later amendments or additions. The department shall maintain a copy of the referenced documents and shall make them available to the public for inspection and copying at no more than the actual cost of reproduction.

B. Specific criteria shall protect all life stages of species associated with wetlands and prevent acute and chronic toxicity in all parts of the wetland.

C. Specific criteria shall include both chronic and acute concentrations to better reflect the different tolerances to the inherent variability between concentrations and toxicological characteristics of a condition.

D. Specific criteria shall be clearly identified as maximum "not to be exceeded" or average values, and if an average, the averaging period and the minimum number of samples. The conditions, if any, when the criteria apply shall be clearly stated (e.g., specific levels of hardness, pH, or water temperature). Specific sampling requirements (e.g., location, frequency), if any, shall also be identified.

E. The data, testing procedures, and application (safety) factors used to develop specific criteria shall reflect the nature of the condition (e.g., persistency, bioaccumulation potential) and the most sensitive species associated with the wetland.

F. Each specific criterion shall be promulgated in rule 10 CSR 20-7.031. The public notice shall include a description of the affected wetland and the reasons for applying the proposed criterion. A public hearing may be held in the geographical vicinity of the affected wetland. Any specific criterion promulgated under these provisions is subject to U.S. Environmental Protection Agency approval prior to becoming effective.

(B) Toxic Substances.

1. Water contaminants shall not cause the criteria in Tables A and B to be exceeded. Concentrations of these substances in bottom sediments or waters shall not harm benthic organisms and shall not accumulate through the food chain in harmful concentrations, nor shall state and federal maximum fish tissue levels for fish consumption be exceeded. More stringent criteria may be imposed if there is evidence of additive or synergistic effects.

2. For compliance with this rule, metals shall be analyzed by the following methods:

A. Aquatic life protection and human-health protection-fish consumption ;/./

(I) Mercury-total recoverable metals ;/./

(II) All other metals-dissolved metals ././

B. Drinking water supply-total recoverable metals; and

C. All other beneficial uses-total recoverable metals.

3. Other potentially toxic substances for which sufficient toxicity data are not available may not be released to waters of the state until safe levels are demonstrated through adequate bioassay studies.

4. Drinking water criteria, for substances which are rendered nontoxic by transformation processes in the surface water body, shall apply at water supply withdrawal points.

5. Site-specific alternative criteria for human health-fish consumption may be allowed. Designation of these site-specific criteria must follow procedures set forth in U.S. Environmental Protection Agency's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*, October 2000 (EPA-822-B-00-004), as published by the Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC 20460, which is hereby incorporated by reference and does not include any later amendments or additions. The department shall maintain a copy of the referenced document and shall make it available to the public for inspection and copying at no more than the actual cost of reproduction.

6. Metals criteria for which toxicity is hardness dependent are in equation format in Table A.

7. Total ammonia nitrogen. For any given sample, the total ammonia nitrogen criteria shall be based on the pH and temperature of the water body measured at the time of each sample at the point of compliance.

A. The acute criteria shall not be exceeded at any time except in those waters for which the department has allowed a zone of initial dilution (ZID). The one- (1-) day Q₁₀ low flow condition will be used in determining acute total ammonia nitrogen criteria.

B. The chronic criteria shall not be exceeded except in water segments for which the department has allowed a mixing zone (MZ). The chronic criteria shall be based on a thirty- (30-) day exposure period. Therefore, the thirty- (30-) day Q₁₀ low flow condition of the receiving water body will be used in determining chronic total ammonia nitrogen criteria.

C. Without sufficient and reliable data, it is assumed that early life stages are present and must be protected at all times of the year.

(I) Sufficient and reliable data shall include, but are not limited to, seasonal studies on the fish species distributions, spawning periods, nursery periods, duration of sensitive life stages, and water body temperature. Best professional judgment from fisheries biologists and other scientists will be considered as appropriate.

(II) The time frames during the year when early life stages are considered to be absent are those time periods when early life stages are present in numbers that, if chronic toxicity did occur, would not affect the long-term success of the populations.

(III) A source of information for determining the duration of early life stages is *The American Society for Testing and Materials (ASTM) Standard E-1241*, "Standard Guide for Conducting Early Life-Stage Toxicity Tests with Fishes."

(IV) Protection of early life stages should include the most sensitive species that have used a water body for spawning and rearing since November 28, 1975.

(C) Bacteria. The protection of whole body contact recreation is limited to waters designated for that use. The recreational season is from April 1 to October 31. The *E. coli* count shall not exceed the criterion listed in Table A as a geometric mean during the recreational season in waters designated for whole body contact recreation. The *E. coli* count shall not exceed one hundred twenty-six (126) per one hundred milliliters (100 mL) at any time in losing streams. For waters designated for secondary contact recreation, the *E. coli* count shall not exceed one thousand one hundred thirty-four (1,134) per one hundred milliliters (100 mL) as a geometric mean during the recreational season.

(D) Temperature.

1. For warm water habitats beyond the mixing zone, water contaminant sources and physical alteration of the water course shall not raise or lower the temperature of a stream more than five degrees Fahrenheit (5 °F) or two and seven-ninths degrees Celsius (2.7/9 °C). Water contaminant sources shall not cause or contribute to stream temperature in excess of ninety degrees Fahrenheit (90 °F) or thirty-two and two-ninths degrees Celsius (32.2/9 °C). However, site-specific ambient temperature data and requirements of sensitive resident aquatic species will be considered, when data are available, to establish alternative maxima or deviations from ambient temperatures.

2. For cool water habitats beyond the mixing zone, water contaminant sources and physical alteration of the water course shall not raise or lower the temperature of a stream more than five degrees Fahrenheit (5 °F) or two and seven-ninths degrees Celsius (2.7/9 °C). Water contaminant sources shall not cause or contribute to stream temperature in excess of eighty-four degrees Fahrenheit (84 °F) or twenty-eight and eight-ninths degrees Celsius (28.8/9 °C).

3. For cold water habitats beyond the mixing zone, water contaminant sources and physical alteration of the water course shall not raise or lower the temperature of the water body more than two degrees Fahrenheit (2 °F) or one and one-ninth degrees Celsius (1.1/9 °C). Water contaminant sources shall not cause or contribute to temperatures above sixty-eight degrees Fahrenheit (68 °F) or twenty degrees Celsius (20 °C).

4. Water contaminant sources shall not cause any measurable rise in the temperature of lakes. An increase is allowable for Lake Springfield, Thomas Hill Reservoir, and Monte Ne Lake; however, discharges from these lakes must comply with temperature limits for streams.

5. For the Mississippi River Zones 1A and 2, the water temperature outside the mixing zone shall not exceed the maximum limits indicated in the following list during more than one percent (1%) of the time in any calendar year. In Zone 1B, limits may not be exceeded more than five percent (5%) of the time in a calendar year. At no time shall the river water temperature outside of the thermal mixing zone exceed the listed limits by more than three degrees Fahrenheit (3 °F) or one and six-ninths degrees Celsius (1.6/9 °C).

	A and B	C
	(°F) (°C)	(°F) (°C)
January	45 7 2/9 50	10
February	45 7 2/9 50	10
March	57 13 8/9 60 15 5/9	
April	68 20	70 21 1/9
May	78 25 5/9 80 26 6/9	
June	86 30	87 30 5/9
July	88 31 1/9 89 31 6/9	
August	88 31 1/9 89 31 6/9	
September	86 30	87 30 5/9
October	75 23 8/9 78 25 5/9	
November	65 18 3/9 70 21 1/9	
December	52 11 1/9 57 13 8/9	

A = Zone 1A—Des Moines River to Lock and Dam No. 25 .

B = Zone 1B—Lock and Dam No. 25 to Lock and Dam No. 26.

C = Zone 2—Lock and Dam No. 26 to the Missouri-Arkansas state line.

6. Thermal mixing zones shall be limited to twenty-five percent (25%) of the cross-sectional area or volume of a river, unless biological surveys performed in response to section 316(a) of the federal Clean Water Act (or equivalent) indicate no significant adverse impact on aquatic life. Thermal plume lengths and widths within rivers, and all plume dimensions within lakes, shall be determined on a case-by-case basis and shall be based on physical and biological surveys when appropriate.

(E) pH. Water contaminants shall not cause **the four-day average pH concentration of representative samples/pH** to be outside of the range of 6.5 to 9.0 standard pH units (**chronic toxicity**).

(F) Taste- and Odor-Producing Substances. Taste- and odor-producing substances shall be limited to concentrations in the streams or lakes that will not interfere with beneficial uses of the water. For those streams and lakes designated for drinking water supply use, the taste- and odor-producing substances shall be limited to concentrations that will not interfere with the production of potable water by reasonable water treatment processes.

(G) Turbidity and Color. Water contaminants shall not cause or contribute to turbidity or color that will cause substantial visible contrast with the natural appearance of the stream or lake or interfere with beneficial uses.

(H) Solids. Water contaminants shall not cause or contribute to solids in excess of a level that will interfere with beneficial uses. The stream or lake bottom shall be free of materials which will adversely alter the composition of the benthos, interfere with the spawning of fish or development of their eggs, or adversely change the physical or chemical nature of the bottom.

(I) Radioactive Materials. All streams and lakes shall conform to state and federal limits for radionuclides established for drinking water supply.

(J) Dissolved Oxygen. Water contaminants shall not cause the dissolved oxygen to be lower than the levels described in Table A3¹ or Table K—Site-Specific Criteria .

(K) Total Dissolved Gases. Operation of impoundment s shall not cause the total dissolved gas concentrations to exceed one hundred ten percent (110%) of the saturation value for gases at the existing atmospheric and hydrostatic pressures.

(L) Sulfate and Chloride Limit for Protection of Aquatic Life. [Water contaminants shall not cause sulfate or chloride criteria to exceed the levels described in Table A.]

1. Streams with 7Q10 low flow of less than one (1) cubic foot per second. The concentration of chloride plus sulfate shall not exceed one thousand milligrams per liter (1,000 mg/L). Table A1 includes additional chloride criteria.

2. Class P1, L1, L2 and L3 waters and streams with 7Q10 low flow of more than one (1) cubic foot per second. The total chloride plus sulfate concentration shall not exceed the estimated natural background concentration by more than twenty (20%) at the 60Q10 low flow.

(M) Carcinogenic Substances. Carcinogenic substances shall not exceed concentrations in water which correspond to the 10^{-6} cancer risk rate. This risk rate equates to one (1) additional cancer case in a population of one (1) million with lifetime exposure. Derivation of this concentration assumes average water and fish consumption amounts. Assumptions are two **and four-tenths** (2.4) liters of water and *six and one-half (6.5)* **twenty-two (22.0)** grams of fish consumed per day. Federally established final maximum contaminant levels for drinking water supply shall supersede drinking water supply criteria developed in this manner.

(N) Nutrients and Chlorophyll.

1. Definitions.

A. For the purposes of this rule, *f*—

(I) All lakes and reservoirs shall be referred to as “lakes”;*f*; and

(II) Only total phosphorus (TP) criteria are derived from lake characteristics. Total nitrogen (TN) and chlorophyll (Chl) criteria are determined as a function of TP criteria.]

B. Lake ecoregions—Due to differences in watershed topography, soils, and geology, nutrient criteria for lakes and reservoirs will be determined by the use of four (4) major ecoregions based upon dominant watershed ecoregion. These regions were delineated by grouping the ecological subsections described in Nigh and Schroeder, 2002, *Atlas of Missouri Ecoregions*, [Missouri Department of Conservation] as follows:

(I) Plains: **OP1 – Scarped Osage Plains; OP2 – Cherokee Plains;** TP2—Deep Loess Hills; TP3—Loess Hills; TP4—Grand River Hills; TP5—Chariton River Hills; TP6—Claypan Till Plains; TP7—Wyaconda River Dissected Till Plains; TP8—Mississippi River Hills;

(II) Ozark Border: MB2a—Crowley’s Ridge Loess Woodland/Forest Hills; OZ11—Prairie Ozark Border; OZ12—Outer Ozark Border; OZ13—Inner Ozark Border;

(III) Ozark Highland: OZ1—Springfield Plain; OZ2—Springfield Plateau; OZ3—Elk River Hills; OZ4—White River Hills; OZ5—Central Plateau; OZ6—Osage River Hills; OZ7—Gasconade River Hills; OZ8—Meramec River Hills; OZ9—Current River Hills; OZ10—St. Francois Knobs and Basins; OZ14—Black River Ozark Border; and

(IV) Big River Floodplain: MB1—Black River Alluvial Plain; MB2b—Crowley’s Ridge Foottslopes and Alluvia 1 Plains; MB3—St. Francis River Alluvial Plain; MB4, OZ16, TP9—Mississippi River Alluvial Plain; OZ15, T P1—Missouri River Alluvial Plain.

C. Nutrient Criteria—The following nutrient criteria represent the desired condition for a water body necessary to protect the designated uses assigned in rule:

(I) Prediction value—A TP concentration that is derived from the characteristics of a lake including dam height in feet, hydraulic residence time in years, and percentage of the watershed that was historically covered by prairie grasses. Prediction values for total phosphorus are calculated directly from these characteristics.

(II) Reference value—A TP concentration that is representative of lakes within an ecoregion having the following characteristics:

- (a) Less than twenty percent (20%) of the watershed is in crop land and urban land combined;
- (b) There are no point source wastewater discharges and no concentrated animal feeding operations within the watershed;
- (c) In the Plains region, more than fifty percent (50%) of the watershed is in grass land; and
- (d) In the Ozark Highlands region, more than fifty percent (50%) of the watershed is in woodland.]

(I) Lake Ecoregion Criteria—Maximum Ambient Concentration of Chlorophyll-a (Chl-a) that is based on an annual geometric mean of samples collected May through September with an allowable exceedance frequency of one in three (1-in-3) years for lakes within a lake ecoregion that have not been assigned site-specific criteria; and

(III) Site-specific value—A TP concentration for a lake that has been identified as having trophic characteristics for which the reference of the ecoregion and the prediction values for that water body are not adequate to prevent deterioration of water quality. Site-specific criteria are applicable to lakes having a geometric mean TP concentration equal to or less than the 10th percentile value of the range of geometric mean TP concentrations measured in reference lakes within a lake ecoregion. Site-specific criteria are also applicable to lakes with actual TP geometric mean concentrations that are at or below the reference value where the prediction value is at or below the 10th percentile for TP geometric mean concentrations within a lake ecoregion. The 10th percentile values for each ecoregion are listed in Table L and lakes with site-specific criteria are listed in Tables M and N.]

(II) Lake Site-Specific Criteria—Maximum Ambient Concentrations of total phosphorus (TP), total nitrogen (TN), or Chl-a that are based on the geometric mean of a minimum of three (3) years of data and the unique characteristics of the waterbody.

D. Nutrient Screening Values—Maximum Ambient Concentrations of TP, TN, and Chl-a that are based on the geometric mean of one (1) year of nutrient data collected May through September. Nutrient screening values represent

nutrient concentrations that, over time, set the potential to threaten the designated uses assigned in rule. In the absence of site-specific targets, nutrient screening values will be used as targets for Total Maximum Daily Load(TMDL) development.

E. Tributary arm—A substantial segment of a [n] Class L2 lake that is primarily recharged by a source or sources other than the main channel of the lake.

2. This rule applies to all lakes [and reservoirs] that are waters of the state and [that are outside the Big River Floodplain ecoregion and] have an area of at least ten (10) acres during normal pool condition. Big River Floodplain lakes shall not be subject to these criteria.

3. Lake Ecoregion Criteria and Screening Values for TP , TN, and Chl-a are listed in Table L. Lake Site-Specific Criteria for TP, TN, and Chl-a are listed in Table M. Additional lake site-specific criteria may be developed in accordance with subsection (5)(S) to account for the unique characteristics of the waterbody that affect trophic status, such as lake morphology, hydraulic residence time, temperature, internal nutrient cycling, or watershed contribution from multiple ecoregions. TP criteria for tributary arms of Class L2 lakes are listed in Table N. [Nutrient criteria for lakes and reservoirs with site-specific criteria are listed in Tables M and N. Nutrient criteria for other lakes are as follows:

A. Total phosphorus (TP)—

- (I) For lakes in which the TP prediction value or the actual TP concentration does not exceed the reference value listed in Table L, the TP criterion shall be the reference value, except as described below;
- (II) For lakes in which the TP prediction value does not exceed the reference value, and the actual TP value does not exceed the prediction value, the TP criterion shall be the prediction value;
- (III) For lakes in which the TP prediction value and the actual TP concentration exceed the reference value listed in Table L, the TP criterion shall be limited to the prediction value; and
- (IV) Site-specific TP criteria for the tributary arms of L2 lakes are listed in Table N;

B. Total nitrogen (TN)—

- (I) For lakes in which the TP prediction value does not exceed the reference value listed in Table L, TN concentration shall be limited to twenty (20) times the TP reference value;
- (II) For lakes in which the TP prediction value does not exceed the reference value, and the actual TP value does not exceed the prediction value, TN concentration shall be limited to twenty (20) times the TP prediction value;
- (III) For lakes in which the TP prediction value exceeds the TP reference value listed in Table L, TN concentration shall be limited to twenty (20) times the TP prediction value; and
- (IV) This portion of the rule does not apply to lakes that are held to site-specific criteria for TP, TN, and Chl, as listed in Tables M and N; and

C. Chlorophyll (Chl)—Chl criteria shall be calculated from TP criteria as follows:

- (I) Plains: Chl:TP = 0.44;
- (II) Ozark Border and Ozark Highlands: Chl:TP = 0.42; and
- (III) This portion of the rule does not apply to lakes that are held to site-specific criteria for TP, TN, and Chl, as listed in Tables M and N.]

4. All TP, TN, and Chl-a[chlorophyll] concentrations must be calculated as the geometric mean of a minimum of four (4) representative samples per year for one (1) year for purposes of comparison to criteria and screening values. [four (4) years that are not necessarily consecutive]. All samples must be collected from the lake surface, near the outflow end of the lake, and during the period May 1– September 30[August 31].

5. Lakes with water quality that exceed Nutrient Criteria identified in Tables L and M are to be deemed impaired for excess nutrients.

6. Lakes with water quality that exceed screening values for Chl-a, TN, or TP are to be deemed impaired for excess nutrients if any of the following eutrophication impacts are documented for the respective designated uses within the same year.

A. Eutrophication impacts for aquatic life uses include:

- (I) Occurrence of eutrophication-related mortality or morbidity events for fish and other aquatic organisms;
- (II) Epilimnetic excursions from dissolved oxygen or pH criteria;
- (III) Cyanobacteria counts in excess of 100,000 cells per milliliter (cells/ml);
- (IV) Observed shifts in aquatic diversity attributed to eutrophication; and
- (V) Excessive levels of mineral turbidity that consistently limit algal productivity during the period May 1 – September 30.

B. Eutrophication impacts for drinking water supply uses include:

- (I) Impacts on water treatment operations due to eutrophication;
- (II) A statistically significant projected trend line is expected to exceed the chlorophyll criterion within 5 years.
- (III) Excessive disinfection byproduct formation due to eutrophication as determined by an exceedance of 80 micrograms per liter Total Trihalomethanes (TTHMs) or 60 micrograms per liter Haloacetic Acids (HAA5s) as an average of the Safe Drinking Water Act compliance monitoring results during the second and third quarters of the year; and
- (IV) Algal toxins in excess of the following values:
 - (a) Microcystin: 0.3 micrograms per liter; and
 - (b) Cylindrospermopsin: 0.7 micrograms per liter.

(O) All methods of sample collection, preservation, and analysis used in applying criteria in these standards shall be in accord with those prescribed in the latest edition of *Standard Methods for the Examination of Water and Wastewater* or other procedures approved by the Environmental Protection Agency and the Missouri Department of Natural Resources.

(P) Criteria to protect designated uses are based on current technical literature, especially the Environmental Protection Agency's publication, *Quality Criteria for Water*, 1986. Criteria may be modified or expanded as additional information is developed or as needed to define narrative criteria for particular situations or locations.

(Q) WET Chronic Tests. Chronic WET tests performed at the percent effluent at the edge of the mixing zone shall not be toxic to the more sensitive of at least two (2) representative, diverse species. Pollutant attenuation processes such as volatilization and biodegradation which may occur within the allowable mixing zone will be considered in interpreting results.

(R) Biocriteria. The biological integrity of waters, as measured by lists or numeric indices of benthic invertebrates, fish, algae, or other appropriate biological indicators, shall not be significantly different from reference waters. Waters targeted for numeric biological criteria assessment must be contained within the Missouri Use Designation Dataset and shall be compared to reference waters of similar size, scale within the stream network, habitat type, and aquatic ecoregion type. Reference water locations for some aquatic habitat types are listed in Table I.

(S) Site-Specific Criteria Development for the Protection and Propagation of Fish, Shellfish, and Wildlife. When water quality criteria in this regulation are either underprotective or overprotective of water quality due to factors influencing bioavailability, or non-anthropogenic conditions for a given water body segment, a petitioner may request site-specific criteria. The petitioner must provide the department with sufficient documentation to show that the current criteria are not adequate and that the proposed site-specific criteria will protect all existing and/or potential uses of the water body.

1. Site-specific criteria may be appropriate where, but is not limited to the examples given in subparagraphs A. or B. of this paragraph.

A. The resident aquatic species of the selected water body have a different degree of sensitivity to a specific pollutant as compared to those species in the data set used to calculate the national or state criteria as described in either of the following parts:

(I) Natural adaptive processes have enabled a viable, balanced aquatic community to exist in waters where natural (non-anthropogenic) background conditions exceed the criterion (e.g., resident species have evolved a genetically-based greater tolerance to high concentrations of a chemical); or

(II) The composition of aquatic species in a water body is different from those used in deriving a criterion (e.g., most of the species considered among the most sensitive, such as salmonids or the cladoceran, *Ceriodaphnia dubia*, which were used in developing a criterion, are absent from a water body).

B. The physical and/or chemical characteristics of the water body alter the biological availability and/or toxicity of the pollutant (e.g., pH, alkalinity, salinity, water temperature, hardness). Such an example is the Water Effect Ratio (WER) defined at (1)(AA) of this rule.

2. All petitioners seeking to develop site-specific criteria shall coordinate with the department early in the process. This coordination will ensure the use of adequate, relevant, and quality data; proper analysis and testing; and defendable procedures.

A. The department will provide guidance for establishing site-specific water quality criteria using scientific procedures including, but not limited to, those procedures described in:

(I) U.S. Environmental Protection Agency's *Water Quality Standards Handbook*, Second Edition, August 1994;

(II) U.S. Environmental Protection Agency's *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals* (EPA-823-B-94-001) and subsequent 1997 modifications;

(III) U.S. Environmental Protection Agency's *Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA-822-R-01-005); and

(IV) U.S. Environmental Protection Agency's *Aquatic Life Ambient Freshwater Quality Criteria – Copper 2007 Revision* (EPA-822-R-07-001).

B. Site-specific criteria development for the Protection and Propagation of Fish, Shellfish and Wildlife shall be performed using the guidance documents listed in parts (5)(S) 2.A.(I)-(IV) as published by the Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC 20460, which are hereby incorporated by reference and do not include any later amendments or additions. The department shall maintain a copy of the referenced documents and shall make them available to the public for inspection and copying at no more than the actual cost of reproduction.

3. Site-specific criteria shall protect all life stages of resident species and prevent acute and chronic toxicity in all parts of a water body/ unless early life stages are determined absent).

4. Site-specific criteria shall include both chronic and acute concentrations to better reflect the different tolerances of resident species to the inherent variability between concentrations and toxicological characteristics of a chemical.

5. Site-specific criteria shall be clearly identified as maximum "not to be exceeded" or average values, and if an average, the averaging period and the minimum number of samples. The conditions, if any, when the criteria apply shall be clearly stated (e.g., specific levels of hardness, pH, or water temperature). Specific sampling requirements (e.g., location, frequency), if any, shall also be identified.

6. The data, testing procedures, and application (safety) factors used to develop site-specific criteria shall reflect the nature of the chemical (e.g., persistency, bioaccumulation potential, and avoidance or attraction responses in fish) and the most sensitive resident species of a water body.

7. The size of a site may be limited to a single water segment, single water subsegment, or may cover a whole watershed depending on the particular situation for which the specific criterion is developed. A group of water bodies may be considered one (1) site if their respective aquatic communities are similar in composition and have comparable water quality.

8. The department shall determine if a site-specific criterion is adequate and justifiable. [*Each site-specific criterion shall be promulgated into rule 10 CSR 20-7.031.*] The public notice shall include a description of the affected water body or water body segment and the reasons for applying the proposed criterion. If the department determines that there is significant public interest, a public hearing may be held in the geographical vicinity of the affected water body or water body segment. Any site-specific criterion promulgated under these provisions is subject to U.S. Environmental Protection Agency approval prior to becoming effective for Clean Water Act purposes.

(6) Groundwater.

(A) Water contaminants shall not cause or contribute to exceedance of Table A, groundwater limits in aquifers and caves. Table A values listed as health advisory levels shall be used in establishing management strategies and groundwater cleanup criteria, until additional data becomes available to support alternative criteria or other standards are established. Substances not listed in Table A shall be limited so that drinking water, livestock watering, and irrigation uses are protected.

(B) When criteria for the protection of aquatic life or human health protection-fish consumption in Table A are more stringent than groundwater criteria, appropriate criteria for the protection of aquatic life or human health protection-fish consumption shall apply to waters in caves and to aquifers which contribute an important part of base flow of surface waters designated for aquatic life protection. Other substances not listed in Table A shall be limited in these aquifers and caves so that the aquatic life use is protected.

(C) Groundwater and other criteria shall apply in any part of the aquifer, including the point at which the pollutant enters the aquifer. A specific monitoring depth requirement for releases to aquifers is included in 10 CSR 20-7.015(7)(A).

(D) For aquifers in which contaminant concentrations exceed groundwater criteria or other protection criteria, and existing and potential uses are not impaired, alternative site-specific criteria may be allowed. To allow alternative criteria, the management authority must demonstrate that alternative criteria will not impair existing and potential uses. The demonstration must consider the factors and be subject to the review requirements of 10 CSR 20-7.015(7)(F).

(7) Metropolitan No-Discharge Streams. No water contaminant except uncontaminated cooling water, permitted stormwater discharges in compliance with permit conditions and excess wet-weather bypass discharges not interfering with beneficial uses, shall be discharged to the watersheds of streams listed in Table F. Existing interim discharges may be allowed until interceptors are available within two thousand feet (2,000') or a distance deemed feasible by the department, or unless construction of outfalls to alternative receiving waters not listed in Table F is deemed feasible by the department. Existing discharges include wastewater volumes up to the design capacity of existing permitted treatment facilities, including phased increases in design capacity approved by the department prior to the effective date of this rule. Additional facilities may be constructed to discharge to these waters only if they are intended to be interim facilities in accordance with a regional wastewater treatment plan approved by the department.

(8) Outstanding National Resource Waters. Under section (3), antidegradation section of this rule, new releases to outstanding national resource waters from any source are prohibited and releases from allowed facilities are subject to special effluent limitations as required in 10 CSR 20-7.015(6). Table D contains a list of the outstanding national resource waters in Missouri.

(9) Outstanding State Resources Waters. The commission wishes to recognize certain high-quality waters that may require exceptionally stringent water-quality management requirements to assure conformance with the antidegradation policy. The degree of management requirements will be decided on an individual basis. To qualify for inclusion, all of the following criteria must be met. The waters listed in Table E must—

- (A) Have a high level of aesthetic or scientific value;
- (B) Have an undeveloped watershed; and
- (C) Be located on or pass through lands which are state or federally owned, or which are leased or held in perpetual easement for conservation purposes by a state, federal, or private conservation agency or organization.

(10) Lake Taneycomo. The commission wishes to recognize the uniqueness of Lake Taneycomo with respect to its high water clarity, its importance as a trout fishery, and as the central natural resource in the rapidly developing Branson area and threats to the lake's water quality imposed by development. An especially stringent antidegradation policy will be observed in the development of effluent rules, discharge permits, and nonpoint-source management plans and permits to assure that the high visual quality and aquatic resources are maintained. The use of the best treatment technology for point- and nonpoint-source discharges in the lake's watershed between Table Rock Lake and Power Site Dam will be the guiding principle in establishing limitations.

(11) Compliance with Water Quality Based Limitation Elimination System (NPDES) or Missouri operating permit limitations based on criteria in this rule shall be achieved in accordance with federal regulation at 40 CFR Part 122.47, "Schedules of Compliance," May 15, 2000, as published by the Office of the Federal Register, National Archives and Records Administration, Superintendent of Documents, Pittsburgh, PA 15250-7954, which is hereby incorporated by reference and does not include any later amendments or additions. The department shall maintain a copy of the referenced document and shall make it available to the public for inspection and copying at no more than the actual cost of reproduction.

(12) **Water Quality Standards** Variances. *(A)* A permittee or an applicant for a National Pollutant Discharge Elimination System (NPDES) or Missouri state operating permit may pursue a temporary variance *[to a water quality standard]* pursuant to either section 644.061 or section 644.062, RSMo. In order to obtain U.S. Environmental Protection Agency approval for a water quality standards variance for purposes of the federal Clean Water Act **under 40 CFR 131.14**, the following additional provisions apply:

(A) *[1.] A variance applies only to the applicant identified in such variance and only to the water quality standard specified in the variance. A variance does not permanently modify an underlying water quality standard.]*

(B) *[2.] A variance shall not be granted if water quality standards will be attained by implementing technology-based effluent limits required under 10 CSR 20-7.015 of this rule and by implementing cost-effective and reasonable best management practices for non-point source control.]*

[3. A variance shall not be granted for actions that will violate general criteria conditions prescribed by 10 CSR 20-7.031(4).]

(C) *[4.] A variance shall not be granted that would likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' critical habitat.]*

(D) *[5.] A variance may be granted if the applicant demonstrates that achieving the water quality standard is not feasible as supported by an analysis based on the factors provided in 40 CFR 131.10(g), or other appropriate factors.]*

(E) *[6.] In granting a variance, conditions and time limitations shall be set by the department with the intent that progress be made toward attaining water quality standards.]*

(F) *[7.] Each variance shall be granted only after public notification and opportunity for public comment. Once any variance to water quality standards is granted, the department shall submit the variance, with an Attorney General Certification that the Clean Water Commission adopted the variance in accordance with state law, to the U.S. Environmental Protection Agency for approval.]*

(G) Individual variances using the terms, conditions, and procedures found in the "Missouri Multiple Discharger Variance Framework from the Water Quality Standards of Total Ammonia Nitrogen, CWC-MDV-1-17", adopted by the Clean Water Commission on October 4, 2017, will be effective upon approval by the Clean Water Commission;

(H) Variance terms and conditions, including facility name, permit number, receiving stream name, first classified waterbody ID, discharge location, effective permit date, and the variance expiration date, will be incorporated into the Missouri Use Designation Dataset.

(13) Losing Streams.

(A) Losing stream determinations will usually be made upon the first application for discharge to a specific water or location within a watershed for a wastewater treatment facility, subdivision development, or animal waste management facility.

(B) Permits or other approvals for those applications will be processed in accordance with the determinations. Additional permits or approvals will be processed in accordance with the latest determination.

(C) For application purposes, any proposed facility within five (5) miles of a known losing stream segment should presume that facility's receiving stream segment is also losing until and unless a specific geologic evaluation is made of that stream and concludes the stream segment is gaining.

(D) Existing facilities operating under a state operating permit and new facilities being constructed under a construction permit in proximity to stream segments subsequently determined to be losing will be allowed to continue in operation at permitted or approved effluent limits for a period of time lasting the design life of the facility (usually twenty (20) years from the original construction completion), provided the facility is in compliance with its effluent limits and remains in compliance with those limits, and if neither of the following conditions is present:

1. If the discharge from such a facility can be eliminated by connection to a locally available facility, the facility shall be connected within three (3) years of the losing stream determination. A local facility shall be considered available if that facility or an interceptor is within two thousand feet (2000') or a distance deemed feasible by the department; and

2. If the discharge from such a facility is shown to cause pollution of groundwater, the facility shall be upgraded to appropriate effluent standards within three (3) years. The department shall include appropriate groundwater monitoring requirements in permits for any such facilities so that pollution, should it occur, would be detected.

(E) Any additional permits or approvals for increased treatment plant design capacity will be processed in accordance with the newest losing stream determination. No additional permits or approvals for any facilities shall be construed as lengthening the time for compliance with losing stream effluent limitations as established in subsection (13)(D).

(14) Severance. If a section, subsection, paragraph, sentence, clause, phrase, or any part of this rule be declared unconstitutional or invalid for any reason, the remainder of this rule shall not be affected and shall remain in full force and effect.

(15) Effective Date. This rule becomes effective immediately upon adoption and compliance with the requirements of subsection 644.036.3., RSMo, of the Missouri Clean Water Law and Chapter 536, RSMo.

[Table A—Criteria for Designated Uses]

*WBC = Whole Body Contact Recreation
 SCR = Secondary Contact Recreation
 AQL = Protection of Aquatic Life
 DWS = Drinking Water Supply
 LWW = Livestock and Wildlife Watering
 GRW = Groundwater*

Pollutant (µg/L)	AQL			
<i>Chlorine (total residual)</i>				
<i>cold-water</i>	2			
<i>warm-water chronic—</i>	10			
<i>acute—</i>	19			
<i>Cyanide (amenable to chlorination)</i>				
<i>chronic—</i>	5			
<i>acute—</i>	22			
<i>Hydrogen sulfide (un-ionized)</i>	2			
Pollutant (mg/L)	AQL	DWS	LWW	GRW
<i>Chloride</i>	(+)	250		
<i>chronic—</i>				
<i>acute—</i>	(+)			
<i>Sulfate</i>	(+)	250		
<i>Fluoride</i>		4	4	4
<i>Nitrate-N</i>		10		10
<i>Dissolved oxygen (minimum)*</i>				
<i>warm-water and cool-water fisheries</i>	5			
<i>cold-water fisheries</i>	6			
<i>Oil and grease</i>	10			

+ See Non-Metals (Hardness Dependent).
 * Site-Specific Criteria have been promulgated for waters listed in Table K.

Pollutant (/100 mL)	WBC-A	WBC-B	SCR
<i>E. coli Bacteria**</i>	126	206	1134

**Geometric mean during the recreational season in waters designated for recreation or at any time in losing streams. The recreational season is from April 1 to October 31.

Pollutant	AQL	
<i>Temperature (maximum)</i>	°F	°C
<i>warm-water</i>	90	32 2/9
<i>cool-water</i>	84	28 8/9
<i>cold-water</i>	68	20
<i>Temperature (maximum change)</i>		
<i>warm-water</i>	5	2 7/9
<i>cool-water</i>	5	2 7/9
<i>cold-water</i>	2	1 6/9
Pollutant (percent saturation)	AQL	
<i>Total Dissolved Gases</i>	110%	

AQL = Protection of Aquatic Life

HHF = Human Health Protection-Fish Consumption

DWS = Drinking Water Supply

IRR = Irrigation

LWW = Livestock Wildlife Watering

GRW = Groundwater

<i>Pollutant (µg/L)</i>	<i>AQL</i>	<i>HHF</i>	<i>DWS</i>	<i>IRR</i>	<i>LWW</i>	<i>GRW</i>
<i>Metals (refer to text in 10 CSR 20-7.031(5)(4J)(B)2.)</i>						
<i>(Not Hardness Dependant)</i>						
<i>Aluminum (acute)</i>	750					
<i>Antimony</i>		4,300	6			6
<i>Arsenic</i>	20		50	100		50
<i>Barium</i>			2,000			2,000
<i>Beryllium</i>	5		4	100		4
<i>Boron</i>				2,000		2,000
<i>Cadmium</i>	*		5			5
<i>Chromium III</i>	*		100	100		100
<i>Chromium VI</i>						
<i>chronic</i>	10					
<i>acute</i>	15					
<i>Cobalt</i>					1,000	1,000
<i>Copper</i>	*		1,300		500	1,300
<i>Iron</i>	1,000					300
<i>Lead</i>	*		15			15
<i>Manganese</i>						50
<i>Mercury</i>			2			2
<i>chronic</i>	0.5					
<i>acute</i>	2.4					
<i>Nickel</i>	*		100			100
<i>Selenium</i>	5		50			50
<i>Silver</i>	*		50			50
<i>Thallium</i>		6.3	2			2
<i>Zinc</i>	*		5,000			5,000

*See Metals (Hardness Dependant)

AQL = Protection of Aquatic Life

Pollutant (µg/L) **AQL**
Metals (Hardness Dependent)

Cadmium (µg/L)	Acute: $e(1.0166 * \ln(\text{Hardness}) - 3.062490) * (1.136672 - (\ln(\text{Hardness}) * 0.041838))$
Chromium III (µg/L)	Chronic: $e(0.7409 * \ln(\text{Hardness}) - 4.719948) * (1.101672 - (\ln(\text{Hardness}) * 0.041838))$
Copper (µg/L)	Acute: $e(0.8190 * \ln(\text{Hardness}) + 3.725666) * 0.316$ Chronic: $e(0.8190 * \ln(\text{Hardness}) + 0.684960) * 0.860$
Lead (µg/L)	Acute: $e(1.273 * \ln(\text{Hardness}) - 1.460448) * (1.46203 - (\ln(\text{Hardness}) * 0.145712))$ Chronic: $e(1.273 * \ln(\text{Hardness}) - 4.704797) * (1.46203 - (\ln(\text{Hardness}) * 0.145712))$
Nickel (µg/L)	Acute: $e(0.8460 * \ln(\text{Hardness}) + 2.255647) * 0.998$ Chronic: $e(0.8460 * \ln(\text{Hardness}) + 0.058978) * 0.997$
Silver (µg/L)	Acute: $e(1.72 * \ln(\text{Hardness}) - 6.588144) * 0.850$
Zinc (µg/L)	Acute: $e(0.8473 * \ln(\text{Hardness}) + 0.884) * 0.98$ Chronic: $e(0.8473 * \ln(\text{Hardness}) + 0.884) * 0.98$

	Hardness								4 225–249	250+
	50–74	75–99	100–124	125–149	150–174	175–199	200–22			
<i>Cadmium</i>										
Acute:	2.4	3.6	4.8	5.9	7.1	8.2	9.4	10.5	11.6	
Chronic:	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	
<i>Chromium III</i>										
Acute:	323	450	570	684	794	901	1,005	1,107	1,207	
Chronic:	42	59	74	89	103	117	131	144	157	
<i>Copper</i>										
Acute:	7	10	13	17	20	23	26	29	32	
Chronic:	5	7	9	11	13	14	16	18	20	
<i>Lead</i>										
Acute:	30	47	65	82	100	118	136	154	172	
Chronic:	1	2	3	3	4	5	5	6	7	
<i>Nickel</i>										
Acute:	261	367	469	566	660	752	842	930	1,017	
Chronic:	29	41	52	63	73	84	94	103	113	
<i>Silver</i>										
Acute:	1.0	2.0	3.2	4.7	6.5	8.4	10.6	13.0	15.6	
<i>Zinc</i>										
Acute:	65	92	117	142	165	188	211	233	255	
Chronic:	65	92	117	142	165	188	211	233	255	

AQL = Protection of Aquatic Life

Pollutant (mg/L) **AQL**
Non-Metals (Hardness Dependent)

Chloride (mg/L)	Acute: $287.8 * (\text{Hardness})^{0.205797} * (\text{Sulfate})^{-0.07452}$
	Chronic: $177.87 * (\text{Hardness})^{0.205797} * (\text{Sulfate})^{-0.07452}$
Sulfate (mg/L)	Chloride, Cl- (mg/L)
Hardness, H (mg/L)	Cl- < 5
H < 100	500
100 ≤ H ≤ 500	500
H > 500	500
	5 ≤ Cl- < 25
	500
	S1
	S2
	2,000
	2,000

$$S1 = [-57.478 + 5.79(\text{hardness}) + 54.163(\text{chloride})] * 0.65$$

$$S2 = [1276.7 + 5.508(\text{hardness}) - 1.457(\text{chloride})] * 0.65$$

AQL = Protection of Aquatic Life

HHF = Human Health Protection-Fish Consumption

DWS = Drinking Water Supply

GRW = Groundwater

Pollutant (ug/L)	AQL	HHF	DWS	GRW
Organics				
<i>Acrolein</i>		780	320	320
<i>Bis-2-chloroisopropyl ether</i>		4,360	1,400	1,400
<i>2, chlorophenol</i>		400	.1	.1
<i>2,4-dichlorophenol</i>	7	790	93	93
<i>2,4-dinitrophenol</i>		14,000	70	70
<i>2,4-dimethylphenol</i>		2,300	540	540
<i>2,4,5-trichlorophenol</i>		9,800	2,600	2,600
<i>2,4,6-trichlorophenol</i>		6.5	2	2
<i>2-methyl-4,6-dinitrophenol</i>		765	13	13
<i>Ethylbenzene</i>	320		700	700
<i>Hexachlorocyclopentadiene</i>	.5		50	50
<i>Isophorone</i>		2,600	36	36
<i>Nitrobenzene</i>		1,900	17	17
<i>Phenol</i>			100	300
<i>chronic-</i>	2,560			
<i>acute-</i>	10,200			
<i>Dichloropropene</i>		1,700	87	87
<i>Para(1,4)-dichlorobenzene</i>		2,600	75	75
<i>Other Dichlorobenzenes</i>		2,600	600	600
<i>1,2,4-trichlorobenzene</i>		940	70	70
<i>1,2,4,5-tetrachlorobenzene</i>		2.9	2.3	2.3
<i>pentachlorobenzene</i>		4.1	3.5	3.5
<i>1,1,1-trichloroethane</i>			200	200
<i>1,1,2-trichloroethane</i>		42	5	5
<i>2,4-dinitrotoluene</i>		9	.11	.04
<i>1,2-diphenylhydrazine</i>		.54	.04	.04
<i>di (2-ethylhexyl) adipate</i>			400	400
<i>n-nitrosodiphenylamine</i>		16	5	5
<i>n-nitrosopyrrolidene</i>		91.9		
<i>2-chloronaphthalene</i>	4,300			
<i>n-nitrosodi-n-propylamine</i>		1.4		
Pollutant (ug/L)	AQL		DWS	GRW
Pesticides				
<i>Demeton</i>		.1		
<i>Endosulfan</i>				
<i>chronic-</i>	.056			
<i>acute-</i>	0.11			
<i>Guthion</i>		.01		
<i>Malathion</i>		.1		
<i>Parathion</i>		.04		
<i>2,4-D</i>			70	70
<i>2,4,5-TP</i>			50	50
<i>Chlorpyrifos</i>	.04			
<i>Alachlor</i>			2	2
<i>Atrazine</i>			3	3
<i>Carbofuran</i>			40	40
<i>Dalapon</i>			200	200
<i>Dibromochloropropane</i>			.2	.2
<i>Dinoseb</i>			7	7
<i>Diquat</i>			20	20
<i>Endothall</i>			100	100
<i>Ethylene dibromide</i>			.05	.05
<i>Oxamyl (vydate)</i>			200	200
<i>Picloram</i>			500	500
<i>Simazine</i>			4	4

AQL = Protection of Aquatic Life

HHF = Human Health Protection-Fish Consumption

DWS = Drinking Water Supply

GRW = Groundwater

<i>Pollutant (µg/L)</i>	<i>AQL</i>	<i>HHF</i>	<i>DWS</i>	<i>GRW</i>
<i>Bioaccumulative,</i>				
<i>Anthropogenic Toxics (+)</i>				
PCBs	.000045			.000045
4-4' dichlorodiphenyldichloroethane (DDT)	0.00059	0.00059	0.00059	0.00059
4-4' dichlorodiphenyldichloroethylene (DDE)	0.00059	0.00059	0.00059	0.00059
4-4' dichlorodiphenyldichloroethane (DDD)	0.00084	0.00083	0.00083	0.00083
Endrin	.0023	2	2	
Endrin aldehyde	.0023	.75	.75	
Aldrin	.000079	.00013	.00013	
Dieldrin	.000076	.00014	.00014	
Heptachlor	.0038	.0002	0.4	0.4
Heptachlor epoxide		.00011	0.2	0.2
Methoxychlor	.03		40	40
Mirex	.001			
Toxaphene	.000073	3	3	
Lindane (<i>gamma-BHC</i>)	.062	.2	.2	
<i>Alpha,beta,delta-BHC</i>	.0074	.0022	.0022	
Chlordane	.00048	2	2	
Benzidine	.00053	.00012	.00012	
2,3,7,8-tetrachlorodibenzo-p-dioxin (ng/L)* (TCDD or dioxin)	.000014	0.000013	0.000013	0.000013
Pentachlorophenol**	3.2-pH 6.5 5.3-pH 7.0 8.7-pH 7.5 14.0-pH 8.0 23.0-pH 8.5	8	1	1

+Many of these values are below current detection limits; analyses will be determined by the 17th edition of Standard Methods or the most current methods approved by the Environmental Protection Agency.

*Units for dioxin are nanograms/liter (ng/L); 1 µg/L = 1,000 ng/L.

**Toxic impurities may be present in technical-grade pentachlorophenol; monitoring and discharge control will assure that impurities are below toxic concentrations.

HHF = Human Health Protection-Fish Consumption

DWS = Drinking Water Supply

GRW = Groundwater

Pollutant (µg/L)	HHF	DWS	GRW
<i>Anthropogenic Carcinogens(+)</i>			
Acrylonitrile	.65	.058	.058
Hexachlorobenzene	.00074	1	1
Bis (2-chloroethyl) ether	1.4	.03	.03
Bis (chloromethyl) ether	0.00078	.00013	.00013
Hexachloroethane	8.7	1.9	1.9
3,3'-dichlorobenzidine	0.08	.04	.04
Hexachlorobutadiene	50	.45	.45
n-nitrosodimethylamine	8	.0007	.0007

(+) Some of these values are below current detection limits; analyses will be determined by the 17th edition of Standard Methods or the most current methods approved by the Environmental Protection Agency.

Pollutant (µg/L)	HHF	DWS	GRW
<i>Volatile Organics</i>			
Chlorobenzene	21,000	100	100
Carbon Tetrachloride	5	5	5
Trihalomethanes		80	80
Bromoform	360	4.3	4.3
Chlorodibromomethane	34	0.41	0.41
Dichlorodibromomethane	46	0.56	0.56
Chloroform	470	5.7	5.7
Methyl Bromide	4,000	48	48
Methyl Chloride	470	5	5
Methylene Chloride	1,600	4.7	4.7
Dichlorodifluoromethane	570,000		
Trichlorofluoromethane	860,000		
1,2-dichloroethane	99	5	5
1,1,2,2-tetrachloroethane	11	.17	.17
1,1-dichloroethylene	3.2	7	7
1,2-trans-dichloroethylene	140,000	100	100
1,2-cis-dichloroethylene		70	70
Trichloroethylene	80	5	5
Tetrachloroethylene	8.85	0.8	0.8
Benzene	71	5	5
Toluene	200,000	1,000	1,000
Xylenes (total)		10,000	10,000
Vinyl chloride	525	2	2
Styrene		100	100
1,2-dichloropropane	39	0.52	0.52
<i>Pollutant (Fibers/L)</i>			
Asbestos		DWS 7,000,000	GRW

HHF = Human Health Protection-Fish Consumption

DWS = Drinking Water Supply

GRW = Groundwater

Pollutant (µg/L)	HHF	DWS	GRW
Polynuclear Aromatic			
Hydrocarbons			
Anthracene	110,000	9,600	9,600
Fluoranthene	370	300	300
Fluorene	14,000	1,300	1,300
Pyrene	11,000	960	960
Benzo(a)pyrene	.049	0.2	0.2
other polynuclear aromatic hydrocarbons*	.049	.0044	.0044
Acenaphthene	2,700	1,200	1,200

*This concentration is allowed for each of the following PAHs: benzo(a)anthracene, 3,4-benzofluoranthene, chrysene, dibenzo-(a,h)anthracene, indeno(1,2,3-cd)pyrene and benzo(k)fluoranthene. Higher values may be allowed if natural background concentrations exceed these values.

Pollutant (µg/L)	HHF	DWS	GRW
Phthalate Esters			
Bis(2-ethylhexyl) phthalate			
Butylbenzyl phthalate	5,200	3,000	3,000
Diethyl phthalate	120,000	23,000	23,000
Dimethyl phthalate	2,900,000	313,000	313,000
Di-n-butyl phthalate	12,000	2,700	2,700

Health Advisory Levels

Pollutant (µg/L)	DWS	GRW
Ametryn	60	60
Baygon	3	3
Bentazon	20	20
Bis-2-chloroisopropyl ether	300	300
Bromacil	90	90
Bromoform	90	90
Bromomethane	10	10
Butylate	350	350
Carbaryl	700	700
Carboxin	700	700
Chloramben	100	100
<i>o</i> -chlorotoluene	100	100
<i>p</i> -chlorotoluene	100	100
Chlorpyrifos	20	20
DCPA (dacthal)	4,000	4,000
Diazinon	0.6	0.6
Dicamba	200	200
Diisopropyl methylphosphonate	600	600
Dimethyl methylphosphonate	100	100
1,3-dinitrobenzene	1	1
Diphenamid	200	200
Diphenylamine	200	200
Disulfoton	0.3	0.3
1,4-dithiane	80	80
Dituron	10	10

DWS = Drinking Water Supply

GRW = Groundwater

Health Advisory Levels (continued)

Pollutant (µg/L)	DWS	GRW
<i>Fenamiphos</i>	2	2
<i>Fluometron</i>	90	90
<i>Fluorotrichloromethane</i>	2,000	2,000
<i>Fonofos</i>	10	10
<i>Hexazinone</i>	200	200
<i>Malathion</i>	200	200
<i>Maleic hydrazide</i>	4,000	4,000
<i>MCPA</i>	10	10
<i>Methyl parathion</i>	2	2
<i>Metolachlor</i>	70	70
<i>Metribuzin</i>	100	100
<i>Naphthalene</i>	20	20
<i>Nitroguanidine</i>	700	700
<i>p-nitrophenol</i>	60	60
<i>Paraquat</i>	30	30
<i>Pronamide</i>	50	50
<i>Propachlor</i>	90	90
<i>Propazine</i>	10	10
<i>Propham</i>	100	100
<i>2,4,5-T</i>	70	70
<i>Tebuthiuron</i>	500	500
<i>Terbacil</i>	90	90
<i>Terbufos</i>	0.9	0.9
<i>1,1,1,2-Tetrachloroethane</i>	70	70
<i>1,2,3-trichloropropane</i>	40	40
<i>Trifluralin</i>	5	5
<i>Trinitroglycerol</i>	5	5
<i>Trinitrotoluene</i>	2	2

Table A1

POLLUTANT	CAS #	Aquatic Life Protection		Human Health Protection		DWS	IRR/ LWP	GRW			
		Acute	Chronic	Org. + Water Org. Only							
								DWS = Drinking Water Supply IRR = Irrigation LWP = Livestock and Wildlife Protection GRW = Groundwater			
METALS (µg/L)											
Aluminum (pH 6.5-9.0)	7429905	750									
Antimony	7440360			5.6	[4,300] 640	6		6			
Arsenic	7440382	340	[20] 150	0.018	0.14	50	100	50			
Barium	7440393			1,000		2,000		2,000			
Beryllium	7440417		[5]			4	100	4			
Boron	7440428						2,000	2,000			
Cadmium	7440439	Table A2	Table A2			5		5			
Chromium (III)	16065831	Table A2	Table A2			100	100	100			
Chromium (VI)	18540299	[15] 16	[10] 11								
Cobalt	7440484						1,000	1,000			
Copper	7440508	Table A2	Table A2	1,300		1,300	500	1,300			
Iron	7439896		1,000					300			
Lead	7439921	Table A2	Table A2			15		15			
Manganese	7439965							50			
Mercury	7439976	[2.4] 1.4	[0.5] 0.77			2		2			
Methylmercury	22967926	1.4	0.77		0.3 mg/kg						
Nickel	7440020	Table A2	Table A2	610	4,600	100		100			
Selenium	7782492		5	170	4,200	50		50			

Silver	7440224	Table A2				50		50
Thallium	7440280			0.24	<i>[6.3] 0.47</i>	2		2
Zinc	7440666	Table A2	Table A2	7,400	26,000	5,000		5,000

OTHER INORGANIC SUBSTANCES (µg/L)

Alkalinity (minimum CaCO ₃)			20,000					
Ammonia	7664417	Table B1	Tables B2 & B3					
Asbestos	1332214			7 million fibers/L		7 million fibers/L		
Chloride	16887006	860,000	230,000			250,000		
Chlorine, Total Residual (Coldwater Aquatic Habitat)	7782505		2					
Chlorine, Total Residual (Warmwater Aquatic Habitat)	7782505	19	<i>[10] 11</i>					
Cyanide	57125	22	<i>[5] 5.2</i>	4	400			
<i>E. coli</i> Bacteria (cfu/100 mL)			WBC-A: 126 WBC-B: 206 SCR: 1,134					
Fluoride						4,000	4,000	4,000
Gases, Total Dissolved (percent saturation)		110%	110%					
Hydrogen Sulfide	7783064		2					
Nitrates	14797558			10,000		10,000		10,000
Oil and Grease			10,000					
Oxygen, Dissolved	7782447	Table A3	Table A3					
pH			6.5 - 9	5 - 9				
Solids Suspended and Turbidity			Narrative Statement					
Sulfate			10 CSR 20-7.031(5)(L)			250,000		
Temperature			10 CSR 20-7.031(5)(D)					

ORGANIC SUBSTANCES (µg/L)

Benzenes

Benzene	71432			2.1	<i>[71] 58</i>	5		5
Chlorobenzene	108907			100	<i>[21,000] 800</i>	100		100
1,2-Dichlorobenzene (ortho-dichlorobenzene)	95501			1,000	<i>[2,600] 3,000</i>	600		600
1,3-Dichlorobenzene (meta-dichlorobenzene)	541731			7	<i>[2,600] 10</i>	600		600
1,4-Dichlorobenzene (para-dichlorobenzene)	106467			300	<i>[2,600] 900</i>	75		75
1,2,4-Trichlorobenzene	120821			0.071	<i>[940] 0.076</i>	70		70
1,2,4,5-Tetrachlorobenzene	95943			0.03	<i>[2.9] 0.03</i>	2.3		2.3
Pentachlorobenzene	608935			0.1	<i>[4.1] 0.1</i>	3.5		3.5
Hexachlorobenzene	118741			0.000079	<i>[0.00074] 0.000079</i>	1		1
Ethylbenzene	100414		<i>[320]</i>	68	130	700		700
Nitrobenzene	98953			10	<i>[1,900] 600</i>	17		17
Styrene (Vinyl Benzene)	100425					100		100

Chlorinated Hydrocarbons

Carbon Tetrachloride (Tetrachloromethane)	56235			0.4	5	5		5
1,2-Dichloroethane	107062			9.9	<i>[99] 650</i>	5		5
1,1,1-Trichloroethane	71556			10,000	200,000	200		200
1,1,2-Trichloroethane	79005			0.55	<i>[42] 8.9</i>	5		5
1,1,2,2-Tetrachloroethane	79345			0.2	<i>[11] 3</i>	0.17		0.17
Hexachloroethane	67721			0.1	<i>[8.7] 0.1</i>	1.9		1.9
1,1-Dichloroethylene	75354			300	<i>[3.2] 20,000</i>	7		7
cis-1,2-Dichloroethylene	156592					70		70
trans-1,2-Dichloroethylene	156605			100	<i>[140,000] 4,000</i>	100		100
Trichloroethylene	79016			0.6	<i>[80] 7</i>	5		5
Tetrachloroethylene	127184			10	<i>[8.85] 29</i>	0.8		0.8
1,2-Dichloropropane	78875			0.9	<i>[39] 31</i>	0.52		0.52

1,3-Dichloropropene (Dichloropropene)	542756			0.27	<i>[1,700] 12</i>	87		87
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Other Halogenated Hydrocarbons

Ethylene Dibromide (1,2-Dibromoethane)	106934					0.05		0.05
Methyl Bromide (Bromomethane)	74839			100	<i>[4,000] 10,000</i>	48		48
Methyl Chloride (Chloromethane)	74873				<i>[470]</i>	5		5
Methylene Chloride (Dichloromethane)	75092			20	<i>[1,600] 1,000</i>	4.7		4.7
Total Trihalomethanes (TTHMs)						80		80
Chlorodibromomethane	124481			0.8	<i>[34] 21</i>	0.41		0.41
Dichlorobromomethane	75274			0.95	<i>[46] 27</i>	0.56		0.56
Tribromomethane (Bromoform)	75252			7	<i>[360] 120</i>	4.3		4.3
Trichloromethane (Chloroform)	67663			60	2,000	5.7		5.7
<i>[Dichlorodifluoromethane]</i>	75718		<i>[570,000]</i>					
<i>[Trichlorofluoromethane]</i>	75694		<i>[860,000]</i>					
Vinyl Chloride	75014			0.022	<i>[525] 1.6</i>	2		2

Ethers

Bis(2-Chloroethyl) Ether	111444			0.03	<i>[1.4] 2.2</i>	0.03		0.03
Bis(2-Chloro-1-Methylethyl) Ether	108601			200	<i>[4,360] 4,000</i>	1,400		1,400
Bis(Chloromethyl) Ether	542881			0.00015	<i>[0.00078] 0.017</i>	0.00013		0.00013

Miscellaneous Organics

2,3,7,8-Tetrachlorodibenzo-p-dioxin 2,3,7,8-TCDD (Dioxin)	1746016			5.00E-09	<i>[1.4E-8] 5.1E-9</i>	1.3 E-08		1.3E-08
Di(2-ethylhexyl) adipate	103231					400		400
Isophorone	78591			34	<i>[2,600] 1,800</i>	36		36
Polychlorinated Biphenyls (PCBs)			0.014 0.00064		<i>[0.000045] 0.000064</i>			0.000045
Tributyltin (TBT)		0.46	0.072					

Nitrogen Containing Compounds

Nitrosamines				0.0008	1.24			
N-Nitrosodibutylamine	924163			0.0063	0.22			
N-Nitrosodiethylamine	55185			0.0008	1.24			
N-Nitrosodimethylamine	62759			0.00069	<i>[8] 3.0</i>	0.0007		0.0007
N-Nitrosodiphenylamine	86306			3.3	<i>[16] 6.0</i>	5		5
N-Nitrosodi-n-propylamine	621647			0.005	<i>[1.4] 0.51</i>			
N-Nitrosopyrrolidine	930552			0.016	<i>[91.9] 34</i>			
Acrylonitrile (2-propenenitrile)	107131			0.061	<i>[0.65] 7.0</i>	0.058		0.058
Benzidine (4,4'-diaminobiphenyl)	92875			0.00014	<i>[0.00053] 0.011</i>	0.00012		0.00012
3,3'-Dichlorobenzidine	91941			0.049	<i>[0.08] 0.15</i>	0.04		0.04
1,2-Diphenylhydrazine	122667			0.03	<i>[0.54] 0.2</i>	0.04		0.04

Polynuclear Aromatic Hydrocarbons (PAHs)

Acenaphthene	83329			70	<i>[2,700] 90</i>	1,200		1,200
Anthracene	120127			300	<i>[110,000] 400</i>	9,600		9,600
Benzo-a-Anthracene	56553			0.0012	<i>[0.049] 0.0013</i>	0.0044		0.0044
Benzo-a-Pyrene	50328			0.00012	<i>[0.049] 0.00013</i>	0.2		0.2
Benzo-b-Fluoranthene	205992			0.0012	<i>[0.049] 0.0013</i>	0.0044		0.0044
Benzo-k-Fluoranthene	207089			0.012	<i>[0.049] 0.013</i>	0.0044		0.0044
2-Chloronaphthalene	91587	<i>[4300]</i>		800	1,000			
Chrysene	218019			0.12	<i>[0.049] 0.13</i>	0.0044		0.0044
Dibenzo-a-h-Anthracene	53703			0.00012	<i>[0.049] 0.00013</i>	0.0044		0.0044
Fluoranthene	206440			20	<i>[370] 20</i>	300		300
Fluorene	86737			50	<i>[14,000] 70</i>	1,300		1,300
Indeno(1,2,3-cd)Pyrene	193395			0.0012	<i>[0.049] 0.0013</i>	0.0044		0.0044
Pyrene	129000			20	<i>[11,000] 30</i>	960		960

Phthalate Esters								
Bis(2-Ethylhexyl) Phthalate	117817			0.32	<i>[5.9] 0.37</i>	6		6
Butylbenzyl Phthalate	85687			0.1	<i>[5,200] 0.1</i>	3,000		3,000
Diethyl Phthalate	84662			600	<i>[120,000] 600</i>	23,000		23,000
Dimethyl Phthalate	131113			2,000	<i>[2,900,000] 2,000</i>	313,000		313,000
Di-n-Butyl Phthalate	84742			20	<i>[12,000] 30</i>	2,700		2,700
Phenolic Compounds								
2-Chlorophenol	95578			30	<i>[400] 800</i>	0.1		0.1
2,4-Dichlorophenol	120832		<i>[7]</i>	10	<i>[790] 60</i>	93		93
2,4-Dimethylphenol	105679			100	<i>[2,300] 3,000</i>	540		540
2-Methyl-4,6-Dinitrophenol	534521			2	<i>[765] 30</i>	13		13
2,4-Dinitrophenol	51285			10	<i>[14,000] 300</i>	70		70
Dinitrophenols	25550587			10	1,000			
3-Methyl-4-Chlorophenol	59507			500	2,000			
Nonylphenol	84852153	28	6.6					
Pentachlorophenol	87865	Table A2	Table A2 03		<i>[8] 0.04</i>	1		1
Phenol (Coldwater Aquatic Habitat)	108952	<i>[10,200] 5,293</i>	<i>[2,560] 157</i>	4,000	300,000	100		300
Phenol (Warmwater Aquatic Habitat)	108952	<i>[10,200] 5,293</i>	2,560	4,000	300,000	100		300
2,4,5-Trichlorophenol	95954			300	<i>[9,800] 600</i>	2,600		2,600
2,4,6-Trichlorophenol	88062			1.5	<i>[6.5] 2.8</i>	2		2
Toluenes								
2,4-Dinitrotoluene	121142			0.049	<i>[9] 1.7</i>	0.11		0.04
Toluene	108883			57	<i>[200,000] 520</i>	1,000		1,000
Xylenes (Total)	1330207					10,000		10,000
PESTICIDES								

Acrolein	107028	3	3	3	<i>[780] 400</i>	320		320
Alachlor	15972608					2		2
Aldrin	309002	3		7.7E-07	<i>[0.000079] 0.00000077</i>	0.00013		0.00013
Atrazine	1912249					3		3
Carbaryl	63252	2.1	2.1					
Carbofuran	1563662					40		40
Chlordane	57749	2.4	0.0043	0.00031	<i>[0.00048] 0.00032</i>	2		2
Chloropyrifos	2921882	0.083	<i>[0.04] 0.041</i>			20		
Chlorophenoxy Herbicide (2,4-D)	94757			1,300	12,000	70		70
Chlorophenoxy Herbicide (2,4,5,-TP)	93721			100	400	50		50
Dalapon	75990					200		200
Demeton	8065483		0.1					
Diazinon	333415	0.17	0.17					
1,2-Dibromo-3-chloropropane (DBCP)	96128					0.2		0.2
4-4'-Dichlorodiphenylchloroethylene (DDE)	72559			0.000018	<i>[0.00059] 0.000018</i>	0.00059		0.00059
4-4'-Dichlorodiphenylchloroethane (DDD)	72548			0.00012	<i>[0.00084] 0.00012</i>	0.00083		0.00083
4-4'-Dichlorodiphenyltrichloroethane (DDT)	50293	1.1	0.001	0.0003	<i>[0.00059] 0.00003</i>	0.00059		0.00059
Dieldrin	60571	0.24	0.056	1.2E-06	<i>[0.000076] 0.0000012</i>	0.00014		0.00014
Dinoseb	88857					7		7
Diquat	85007					20		20
alpha-Endosulfan (Endosulfan)	959988	<i>[0.11] 0.22</i>	0.056	20	30			
beta-Endosulfan (Endosulfan)	33213659	<i>[0.11] 0.22</i>	0.056	20	40			
Endosulfan Sulfate	1031078			20	40			
Endothall	145733					100		100

Endrin	72208	0.086	0.036	0.03	<i>[0.0023]</i> 0.03	2		2
Endrin Aldehyde	7421934			1	<i>[0.0023]</i> 1	0.75		0.75
Glyphosate	1071836					700		700
Guthion	86500		0.01					
Heptachlor	76448	0.52	0.0038	5.9E-06	<i>[0.0002]</i> 0.0000059	0.4		0.4
Heptachlor Epoxide	1024573	0.52	0.0038 0.000032		<i>[0.00011]</i> 0.000032	0.2		0.2
Hexachlorobutadiene	87683			0.01	<i>[50]</i> 0.01	0.45		0.45
Hexachlorocyclopentadiene	77474		<i>[0.5]</i>	4	4	50		50
alpha-Hexachlorocyclohexane (alpha-BHC)	319846			0.00036	<i>[0.0074]</i> 0.00039	0.0022		0.0022
beta-Hexachlorocyclohexane (beta-BHC)	319857			0.008	<i>[0.0074]</i> 0.014	0.0022		0.0022
gamma-Hexachlorocyclohexane (gamma-BHC; Lindane)	58899	0.95		4.2	<i>[0.062]</i> 4.4	0.2		0.2
Technical-Hexachlorocyclohexane	608731			0.0066	0.01			
Malathion	121755		0.1					
Methoxychlor	72435		0.03	0.02	0.02	40		40
Mirex	2385855		0.001					
Oxamyl (Vydate)	23135220					200		200
Picloram	1918021					500		500
Parathion	56382	0.065		<i>[0.04]</i> 0.013				
Simazine	122349					4		4
Toxaphene	8001352	0.73	0.0002 0.0007		<i>[0.000073]</i> 0.00071	3		3

Table A2.

Aquatic Life Protection

POLLUTANT	CAS #	
METALS (μg/L) - Hardness Dependent		
Cadmium	7440439	<p>Acute = $e^{(1.0166 * \ln(\text{Hardness}) - 3.062490)} * (1.136672 - (\ln(\text{Hardness}) * 0.041838))$</p> <p>Chronic = $\frac{[e^{(0.7409 * \ln(\text{Hardness}) - 4.719948)} * (1.101672 - (\ln(\text{Hardness}) * 0.041838))]}{e^{(0.7977 * \ln(\text{Hardness}) - 3.909)} * (1.101672 - (\ln(\text{Hardness}) * 0.041838))}$</p>
Chromium (III)	16065831	<p>Acute = $e^{(0.8190 * \ln(\text{Hardness}) + 3.725666)} * 0.316$</p> <p>Chronic = $\frac{[e^{(0.8190 * \ln(\text{Hardness}) + 0.684960)} * 0.860]}{e^{(0.8190 * \ln(\text{Hardness}) + 0.6848)} * 0.860}$</p>
Copper	7440508	<p>Acute = $e^{(0.9422 * \ln(\text{Hardness}) - 1.700300)} * 0.960$</p> <p>Chronic = $e^{(0.8545 * \ln(\text{Hardness}) - 1.702)} * 0.960$</p>
Lead	7439921	<p>Acute = $e^{(1.273 * \ln(\text{Hardness}) - 1.460448)} * (1.46203 - (\ln(\text{Hardness}) * 0.145712))$</p> <p>Chronic = $e^{(1.273 * \ln(\text{Hardness}) - 4.704797)} * (1.46203 - (\ln(\text{Hardness}) * 0.145712))$</p>
Nickel	7440020	<p>Acute = $e^{(0.8460 * \ln(\text{Hardness}) + 2.255647)} * 0.998$</p> <p>Chronic = $\frac{[e^{(0.8460 * \ln(\text{Hardness}) + 0.058978)} * 0.997]}{e^{(0.8460 * \ln(\text{Hardness}) + 0.0584)} * 0.997}$</p>
Silver	7440224	Acute = $e^{(1.72 * \ln(\text{Hardness}) - 6.588144)} * 0.850$
Zinc	7440666	<p>Acute = $e^{(0.8473 * \ln(\text{Hardness}) + 0.884)} * 0.98$</p> <p>Chronic = $e^{(0.8473 * \ln(\text{Hardness}) + 0.884)} * 0.98$</p>
OTHER POLLUTANTS (μg/L) - Equation Dependent		
Pentachlorophenol	87865	Acute = $e^{((1.005 * (\text{pH})) - 4.869)}$

$$\text{Chronic} = e^{((1.005 * (\text{pH})) - 5.134)}$$

Table A3

POLLUTANT		
DISSOLVED OXYGEN (mg/L)		
	Cold-water Fishery	Warm-water and Cool-water Fishery
Minimum ¹	6 mg/L	5 mg/L

1 - All minima should be considered as instantaneous concentrations to be achieved at all times.

Table A4

POLLUTANT	CAS #	DWS	GRW
HEALTH ADVISORY LEVELS (µg/L)			
Ametryn	834128	60	60
Baygon	114261	3	3
Bentazon	25057890	20	20
Bis-2-chloroisopropyl ether	108601	300	300
Bromacil	314409	90	90
Bromochloromethane	74975	90	90
Bromomethane	74839	10	10
Butylate	2008415	350	350
Carbaryl	63252	700	700
Carboxin	5234684	700	700
Chloramben	133904	100	100
o-chlorotoluene	95498	100	100
p-chlorotoluene	106434	100	100
Chlorpyrifos	2921882	20	20
DCPA (dacthal)	1861321	4000	4000
Diazinon	333415	0.6	0.6
Dicamba	1918009	200	200
Diisopropyl methylphosphonate	1445756	600	600
Dimethyl methylphosphonate	756796	100	100
1,3-dinitrobenzene	99650	1	1
Diphenamid	957517	200	200

Diphenylamine	122394	200	200
Disulfoton	298044	0.3	0.3
1,4-dithiane	505293	80	80
Diuron	330541	10	10
Fenamiphos	22224926	2	2
Fluometron	2164172	90	90
Fluorotrichloromethane	75694	2000	2000
Fonofos	944229	10	10
Hexazinone	51235042	200	200
Malathion	121755	200	200
Maleic hydrazide	123331	4000	4000
MCPA (4(chloro-2-methoxyphenoxy) acetic acid)	94746	10	10
Methyl parathion	298000	2	2
Metolachlor	51218452	70	70
Metribuzin	21087649	100	100
Naphthalene	91203	20	20
Nitroguanidine	556887	700	700
para-Nitrophenol	100027	60	60
Paraquat	1910425	30	30
Pronamide	23950585	50	50
Propachlor	1918167	90	90
Propazine	139402	10	10
Propham	122429	100	100
2,4,5-T (Trichlorophenoxy-acetic acid)	93765	70	70
Tebuthiuron	34014181	500	500

Terbacil	5902512	90	90
Terbufos	13071799	0.9	0.9
1,1,1,2-Tetrachloroethane	630206	70	70
1,2,3-Trichloropropane	96184	40	40
Trifluralin	1582098	5	5
Trinitroglycerol	55630	5	5
2,4,6-Trinitrotoluene (Trinitrotoluene)	118967	2	2

Table B1. Acute Criteria for Total Ammonia Nitrogen (mg N/L)

pH	Cold-Water Fisheries (1)	Cool & Warm-Water Fisheries (2)
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.6	14.4
7.8	8.1	12.1
7.9	6.7	10.1
8.0	5.6	8.4
8.1	4.6	6.9
8.2	3.8	5.7
8.3	3.1	4.7
8.4	2.5	3.8
8.5	2.1	3.2
8.6	1.7	2.6
8.7	1.4	2.2
8.8	1.2	1.8
8.9	1.0	1.5
9.0	0.8	1.3

(1) Salmonids present: $CMC = [0.275 / (1+10^{7.204-pH})] + [39.0 / (1+10^{pH-7.204})]$

(2) Salmonids absent: $CMC = [0.411 / (1+10^{7.204-pH})] + [58.4 / (1+10^{pH-7.204})]$

Table B2. Chronic Criteria for Total Ammonia Nitrogen (mg N/L): Early Life Stage Absent ⁽³⁾⁽⁴⁾

pH	Temperature (°C)																						
	0-7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30						
6.5	10.8	10.1	9.5	8.9			8.3	7.8	7.3	6.8	6.4	6.0	5.3	4			.6	4.1	3.6	3.1	2.8	2.4	
6.6	10.7	9.9	9.3	8.7			8.2	7.7	7.2	6.7	6.3	5.9	5.2	4.				6.4	0	3.5	3.1	2.7	2.4
6.7	10.5	9.8	9.2	8.6			8.0	7.5	7.1	6.6	6.2	5.8	5.1	4.				5.3	9	3.5	3.0	2.7	2.3
6.8	10.2	9.5	8.9	8.4			7.9	7.4	6.9	6.5	6.1	5.7	5.0	4.				4.3	8	3.4	3.0	2.6	2.3
6.9	9.9		9.3	8.7	8.1		7.6	7.2	6.7	6.3	5.9	5.5	4.8	4.3				3.7	3.3	2.9	2.5	2.2	
7.0	9.6		9.0	8.4	7.9		7.4	6.9	6.5	6.1	5.7	5.3	4.7	4.1				3.6	3.2	2.8	2.4	2.1	
7.1	9.2		8.6	8.0	7.5		7.1	6.6	6.2	5.8	5.4	5.1	4.5	3.9				3.5	3.0	2.7	2.3	2.0	
7.2	8.7		8.2	7.6	7.2		6.7	6.3	5.9	5.5	5.2	4.9	4.3	3.7				3.8	2.9	2.5	2.2	1.9	
7.3	8.2		7.7	7.2	6.7		6.3	5.9	5.6	5.2	4.9	4.6	4.0	3.5				3.1	2.7	2.4	2.1	1.8	
7.4	7.6		7.2	6.7	6.3		5.9	5.5	5.2	4.8	4.5	4.3	3.7	3.3				2.9	2.5	2.2	1.9	1.7	
7.5	7.0		6.6	6.2	5.8		5.4	5.1	4.8	4.5	4.2	3.9	3.4	3.0				2.6	2.3	2.0	1.8	1.6	
7.6	6.4		6.0	5.6	5.3		5.0	4.6	4.3	4.1	3.8	3.6	3.1	2.7				2.4	2.1	1.9	1.6	1.4	
7.7	5.8		5.4	5.1	4.7		4.4	^f _{αT}	4.2	3.9	3.7	3.4	3.2	2.8	2.5	2.2	1.9	1.7	1.5	1.3			
7.8	5.1		4.8	4.5	4.2		4.0	^f _{αT}	3.7	3.5	3.2	3.0	2.8	2.5	2.2	1.9	1.7	1.5	1.3	1.1			
7.9	4.5		4.2	3.9	3.7		3.5	3.2	3.1	2.8	2.7	2.5	2.2	1.9				1.7	1.5	1.3	1.1	1.0	
8.0	3.9		3.7	3.4	3.2		3.0	2.8	2.6	2.5	2.3	2.2	1.9	1.7				1.5	1.3	1.1	1.0	0.8	
8.1	3.4		3.1	2.9	2.8		2.6	2.4	2.3	2.1	2.0	1.9	1.6	1.4				1.2	1.1	1.0	0.8	0.7	
8.2	2.9		2.7	2.5	2.4		2.2	2.1	1.9	1.8	1.7	1.6	1.4	1.2				1.1	0.9	0.8	0.7	0.6	
8.3	2.4		2.3	2.1	2.0		1.9	1.7	1.6	1.5	1.4	1.3	1.2	1.0				0.9	0.8	0.7	0.6	0.5	
8.4	2.0		1.9	1.8	1.7		1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9				0.7	0.7	0.6	0.5	0.4	
8.5	1.7		1.6	1.5	1.4		1.3	1.2	1.2	1.1	1.0	0.9	0.8	0.7				0.6	0.5	0.5	0.4	0.4	
8.6	1.4		1.4	1.3	1.2		1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.6				0.5	0.4	0.4	0.3	0.3	
8.7	1.2		1.1	1.	1.0		0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.5				0.4	0.4	0.3	0.3	0.2	
8.8	1.0		1.0	0.9	0.8		0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.4				0.4	0.3	0.3	0.2	0.2	
8.9	0.9		0.8	0.8	0.7		0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.3				0.3	0.2	0.2	0.2	0.2	
9.0	0.7		0.7	0.6	0.6		0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3				0.3	0.2	0.2	0.2	0.1	

(3) Without sufficient and reliable data, it is assumed that Early Life Stages are present and must be protected at all times of the year.

(4) Early Life Stages absent $CCC = [0.0577 / (1+10^{7.688-pH})] + [2.487 / (1+10^{pH-7.688})] * 1.45 * 10^{0.028 * (25-\text{MAX}(T, 7))}$

Table B3. Chronic Criteria for Total Ammonia Nitrogen (mg N/L): Early Life Stages present (5)

pH	Temperature (°C)									
	14	16	18	20	22	24	26	28	30	
6.5	6.6	6.6	6.0	5.3	4.6	4.1	3.6	3.1	2.8	2.4
6.6	6.5	6.5	5.9	5.2	4.6	4.0	3.5	3.1	2.7	2.4
6.7	6.4	6.4	5.8	5.1	4.5	3.9	3.5	3.0	2.7	2.3
6.8	6.2	6.2	5.7	5.0	4.4	3.8	3.4	3.0	2.6	2.3
6.9	6.1	6.1	5.5	4.8	4.3	3.7	3.3	2.9	2.5	2.2
7.0	5.9	5.9	5.3	4.7	4.1	3.6	3.2	2.8	2.4	2.1
7.1	5.6	5.6	5.1	4.5	3.9	3.5	3.0	2.7	2.3	2.0
7.2	5.3	5.3	4.9	4.3	3.7	3.3	2.9	2.5	2.2	1.9
7.3	5.0	5.0	4.6	4.0	3.5	3.1	2.7	2.4	2.1	1.8
7.4	4.7	4.7	4.3	3.7	3.3	2.9	2.5	2.2	1.9	1.7
7.5	4.3	4.3	3.9	3.4	3.0	2.6	2.3	2.0	1.8	1.6
7.6	3.9	3.9	3.6	3.1	2.7	2.4	2.1	1.9	1.6	1.4
7.7	3.5	3.5	3.2	2.8	2.5	2.2	1.9	1.7	1.5	1.3
7.8	3.1	3.1	2.8	2.5	2.2	1.9	1.7	1.5	1.3	1.1
7.9	2.8	2.8	2.5	2.2	1.9	1.7	1.5	1.3	1.1	1.0
8.0	2.4	2.4	2.2	1.9	1.7	1.5	1.3	1.1	1.0	0.8
8.1	2.1	2.1	1.9	1.6	1.4	1.2	1.1	1.0	0.8	0.7
8.2	1.7	1.7	1.6	1.4	1.2	1.1	0.9	0.8	0.7	0.6
8.3	1.5	1.5	1.3	1.2	1.0	0.9	0.8	0.7	0.6	0.5
8.4	1.2	1.2	1.1	1.0	0.9	0.7	0.7	0.6	0.5	0.4
8.5	1.0	1.0	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.4
8.6	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.3	0.3
8.7	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2
8.8	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2
8.9	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2
9.0	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1

(1) Salmonids present: $CMC = [0.275 / (1 + 10^{7.204-pH})] + [39.0 / (1 + 10^{pH-7.204})]$

(2) Salmonids absent: $CMC = [0.411 / (1 + 10^{7.204-pH})] + [58.4 / (1 + 10^{pH-7.204})]$

(3) Without sufficient and reliable data, it is assumed that Early Life Stages are present and must be protected at all times of the year.

(4) Early Life Stages absent

$$CCC = [0.0577 / (1 + 10^{7.688-pH})] + [2.487 / (1 + 10^{pH-7.688})] * 1.45 * 10^{0.028 * (25 - MAX(T, 7))}$$

(5) Early Life Stages present $CCC = [0.0577 / (1 + 10^{7.688-pH})] + [2.487 / (1 + 10^{pH-7.688})] * MIN(2.85, 1.45 * 10^{0.028 * (25 - T)})$

Table C
Waters Designated for Cold-Water Fishery

Water Body	Miles/Acres	From	To	County(ies)
Barren Fork	2.0	Mouth	20,31N,4W	Shannon
Bee Creek	1.0	Mouth	Hwy. 65	Taney
Bender Creek	0.7	Mouth	10,31N,9W	Texas
Bennett Springs Creek	2.0	Mouth	Bennett Springs	Laclede
Blue Springs Creek	4.0	Mouth	2,39N,3W	Crawford
Bryant Creek	1.0	3,23N,12W	34,24N,12W	Ozark
Bryant Creek	6.0	19,27N,14W	8,27N,15W	Douglas
Buffalo Creek	10.0	State line	5,23N,33W	McDonald
Bull Creek	5.0	Mouth	34,24N,21W	Taney
Bull Shoals Lake	9,000.0 ac.	21/34,20N,15W	---	Ozark
Capps Creek	4.0	Mouth	17,25N,28W	Newton-Barry
Cedar Creek	1.0	21,26N,32W	28,26N,32W	Newton
Center Creek	3.0	24,27N,29W	17,27N,28W	Lawrence
Chesapeake Creek	3.0	Mouth	29,28N,25W	Lawrence
Crane Creek	15.0	8,25N,23W	24,26N,25W	Stone-Lawrence
Current River	19.0	24,31N,6W	Montauk Spring	Shannon-Dent
Dogwood Creek	2.3	Mouth	State line	Stone
Dry Creek	4.0	Mouth	14,37N,3W	Crawford
Eleven Point River	33.5	State line	36,25N,4W	Oregon
Flat Creek	3.0	9,23N,27W	21,23N,27W	Barry
Goose Creek	4.0	Mouth	10,28N,25W	Lawrence
Greer Spring Branch	1.0	Mouth	36,25N,4W	Oregon
Hickory Creek	4.5	13,25N,31W	28,25N,31W	Newton
Hobbs Hollow	2.7	Mouth	State line	Stone
Horse Creek	2.2	Mouth	23,35N,8W	Dent
Hunter Creek	5.0	22,26N,15W	20,26N,14W	Douglas
Hurricane Creek	1.5	Mouth	30,24N,12W	Ozark
Hurricane Creek	3.2	Mouth	22,25N,3W	Oregon
Indian Creek	1.4	Mouth	17,21N,23W	Stone
Indian Creek	20.0	Mouth	36,39N,01W	Franklin-Washington
Johnson Creek	3.0	Mouth	36,29N,26W	Lawrence
Joyce Creek	1.0	17,24N,28W	16,24N,28W	Barry
L. Flat Creek	3.5	Mouth	25,25N,27W	Barry
L. Piney Creek	15.0	25,37N,9W	4,35N,8W	Phelps
L. Piney Creek	4.0	04,35N,08W	21,35N,08W	Phelps
L. Sinking Creek	2.2	Mouth	33,32N,4W	Dent
Lake Taneycomo	1,730.0 ac.	8,23N,20W	---	Taney
Lyman Creek	1.0	Mouth	30,40N,3W	Crawford
Maramec Spring Branch	1.0	Mouth	1,37N,6W	Phelps
Meramec River	10.0	22,38N,5W	Hwy. 8	Crawford
Mill Creek	1.5	Mouth	11,40N,8W	Maries
Mill Creek	1.5	Mouth	9,36N,18W	Dallas
Mill Creek	5.0	29,37N,9W	Yelton Spring	Phelps
N. Fork White River	23.0	09,22N,12W	34,25N,11W	Ozark
Niangua River	6.0	11,35N,18W	Bennett Sp. Creek	Dallas
Roaring River	7.0	Mouth	34,22N,27W	Barry
Roark Creek	3.0	Mouth	36,23N,22W	Taney
Roubidoux Creek	4.0	Mouth	25,36N,12W	Pulaski
S. Indian Creek	9.0	24,24N,31W	1,23N,30W	Newton
Schafer Spring Creek	2.0	Mouth	20,32N,6W	Dent
Shoal Creek	1.0	Mouth	18,41N,17W	Morgan
Shoal Creek	7.0	09,25N,29W	16,22N,21W	Newton
Spring Branch	1.0	Mouth	18,41N,17W	Morgan
Spring Creek	5.0	Mouth	14,23N,11W	Ozark
Spring Creek	6.5	Mouth	31,35N,9W	Phelps
Spring Creek	2.5	Mouth	4,41N,2W	Franklin
Spring Creek	5.5	Mouth	12,26N,24W	Stone
Spring Creek	6.0	Mouth	06,24N,13W	Douglas-Ozark
Spring Creek	2.5	Mouth	26,25N,11W	Douglas
Spring Creek	4.0	Mouth	30,25N,4W	Oregon
Spring River	11.2	13,27N,27W	20,26N,26W	Lawrence
Stone Mill Spring Branch	0.2	Mouth	Spring	Pulaski
Terrell Creek	2.0	Mouth	2,27N,23W	Christian
Tory Creek	2.5	Mouth	27,26N,22W	Stone-Christian

Table C
Waters Designated for Cold-Water Fishery

Water Body	Miles/Acres	From	To	County(ies)
Turkey Creek	2.0	Mouth	16,22N,21W	Taney
Turkey Creek	1.0	Mouth	17,23N,15W	Ozark
Turnback Creek	14.0	35,30N,26W	24,28N,25W	Dade-Lawrence
Warm Fork Spring River	3.0	6,22N,5W	30,23N,5W	Oregon
Whittenburg Creek	2.5	Mouth	Hwy. 8	Crawford
Williams Creek	1.0	Mouth	28,28N,27W	Lawrence
Woods Fork Bull Creek	1.0	15,25N,21W	15,25N,21W	Christian
Yadkin Creek	3.0	Mouth	9,37N,4W	Crawford
Yankee Branch	1.0	Mouth	10,36N,4W	Crawford

Table D
Outstanding National Resource Waters

Water Body	Location	County(ies)
Current River	Headwaters to Northern Ripley Co. Line Sec. 22,32N,07W to Sec. 15,25N,01E	Dent to Ripley
Jacks Fork River	Headwaters to Mouth Sec. 29,28N,07W to Sec. 9/15,29N,03W	Texas to Shannon
Eleven Point River	Headwaters to Hwy. 142 Sec. 32,25N,05W to Sec. 21,22N,02W	Oregon

Table E
Outstanding State Resource Waters

Water Body	Miles/Acres	Location	County(ies)
Baker Branch	4 mi.	Taberville Prairie	St. Clair
Bass Creek	1 mi.	in Three Creek Conservation Area	Boone
Big Buffalo Creek	1.5 mi.	Big Buffalo Creek Conservation Area	Benton-
Morgan			
Big Creek	5.3 mi.	Sam A. Baker State Park	Wayne
Big Sugar Creek	7 mi.	Cuivre River State Park	Lincoln
Big Lake Marsh	150 ac.	Big Lake State Park	Holt
Blue Springs Creek	4 mi.	Blue Spring Creek Conservation Area	Crawford
Bonne Femme Creek	2 mi.	Three Creeks Conservation Area	Boone
Brush Creek	0.7 mi.	Bonanza Conservation Area	Caldwell
Bryant Creek	1.5 mi.	Bryant Creek Natural Area in Rippee Conservation Area	
Bull Creek	8 mi.	Mark Twain National Forest Sec. 24,25N,21W to Sec. 22,26N,20W	Christian
Cathedral Cave Branch	5 mi.	Onondaga Cave State Park	Crawford
Chariton River	9.8 mi.	Rebels Cove Conservation Area	Putnam-
Schuylerville			
Chloe Lowry Marsh	40 ac.	Chloe Lowry Marsh Conservation Area	Mercer
Coakley Hollow	1.5 mi.	Lake of the Ozarks State Park	Camden
Coonville Creek	2 mi.	St. Francois State Park	St. Francois
Courtois Creek	12 mi.	Mouth to Hwy. 8	Crawford
Crabapple Creek	1.0 mi.	Bonanza Conservation Area	Caldwell
Devils Ice Box Cave Branch	1.5 mi.	Rock Bridge State Park	Boone
East Fork Black River	3 mi.	Johnson's Shut-Ins State Park	Reynolds
First Nicholson Creek (East Drywood Creek)	2 mi.	Prairie State Park	Barton
Gan's Creek	3 mi.	Rock Bridge State Park	Boone
Huzzah Creek	6 mi.	Mouth to Hwy. 8	Crawford
Indian Creek	17.5 mi.	Mark Twain National Forest	Douglas-
Howell			
Ketchum Hollow	1.5 mi.	Roaring River State Park	Barry
Little Piney Creek	25 mi.	Mouth to 21,35N,08W	Phelps
Little Black River	3 mi.	Mud Puppy Natural History Area S22,T24N,R3E to S25,T24N,R3E	Ripley

Log Creek	0.4 mi.	Bonanza Conservation Area	Caldwell
Meramec River	8 mi.	Adjacent to Meramac State Park	
	Crawford/Franklin		
Meramec River	3 mi.	Adjacent to Onondaga and Huzzah State Forest	Crawford
Mill Creek	5 mi.	Mark Twain National Forest	Phelps
N. Fork White River	5.5 mi	Mark Twain National Forest	Ozark
Noblett Creek	5 mi.	Above Noblett Lake, Mark Twain National Forest	Douglas
Howell			
Onondaga Cave Branch	0.6 mi.	Onondaga Cave State Park	Crawford
Pickle Creek	3 mi.	Hawn State Park	Ste.
Genevieve			
S. Prong L. Black River	2 mi.	In Little Black Conservation Area	Ripley
Shoal Creek	0.5 mi.	Bonanza Conservation Area	Caldwell
Spring Creek	17 mi.	Mark Twain National Forest	Douglas
Spring Creek	6.5 mi.	Mark Twain National Forest	Phelps
Taum Sauk Creek	5.5 mi.	Johnson's Shut-Ins State Park Addition	
		S23,T33N,R2E to S5,T33N,R3E	Reynolds-Iron
Turkey Creek	4.6 mi.	In Three Creeks Conservation Area	Boone
Van Meter Marsh	80 ac.	Van Meter State Park	Saline
Whetstone Creek	5.1 mi.	Whetsone Creek Conservation Area	Callaway

Table F
Metropolitan No-Discharge Streams

St. Louis Area	
Stream	Location
Gravois Creek	Entire length
Creve Coeur Creek	Creve Coeur Lake and stream above lake
Fee Fee Creek	Entire length
Coldwater Creek	Entire length
Dardenne Creek	Route DD-I-70 Highway-St. Charles
County	
Belleau Creek	Headwaters—0.1 mi. west of east edge of
S22,T47N,R3E	
Fishpot Creek	Entire length
Grand Glaize Creek	Entire length
Kansas City Area	
Stream	Location
Indian Creek	Kansas state line to confluence with Blue
River	
Blue River	Kansas state line to 59th Street, Kansas City
Blue River (except combined sewer overflow from Brush Creek)	59th Street to Guinotte Dam
Little Blue River	Entire length
Springfield Area	
Stream	Location
Pearson Creek	Entire length

Table I
Biocriteria Reference Location

STREAMS	COUNTIES	UPSTREAM LOCATION	DOWNTSTREAM LOCATION
Apple Creek	Cape Girardeau/Perry	W 1/2 Sec. 29 T3 4N R11E	NW Sec. 3 T33N R11E
Big Creek	Shannon	E 1/2 Sec. 12 T30N R04W	N 1/2 Sec. 36 T30N R04W
Big Sugar Creek	McDonald	SE Sec. 1 T21N R30W	NE Sec. 21 T22N R30W
Blair Creek	Shannon	SE Sec. 25 T30N R03W	NW Sec. 18 T29N R02W
Boeuf Creek	Franklin	SW Sec. 36 T44N R04W	NW Sec. c. 30 T44N R03W
Bryant Creek	Douglas	NW Sec. 10 T25N R14W	E 1/2 Sec. 15 T25N R14W
Bull Creek	Christian/Taney	SE Sec. 25 T25N R21W	NE Sec. 3 T24N R21W
Burris Fork	Moniteau	NW Sec. 6 T43N R15W	NW Sec. 28 T44N R15W
Castor River	Madison	NW Sec. 10 T33N R08E	S 1/2 Sec. 16 T33N R08E
Cedar Creek	Cedar	E 1/2 Sec. 29 T34N R27W	N 1/2 Sec. 09 T34N R27W
Center Creek	Lawrence	SE Sec. 18 T27N R28W	NE Sec. 24 T27N R29W
Deer Creek	Benton	SE Sec. 31 T40N R20W	NE Sec. 30 T40N R20W
East Fork Black River	Reynolds	NE Sec. 08 T33N R 02E	SW Sec. 16 T33N R02E
East Fork Crooked River	Ray	NE Sec. 02 T52N R27W	SE Sec. 14 T52N R27W
East Fork Grand River	Worth	N 1/2 Sec. 32 T66N R 30W	NW Sec. 13 T65N R31W
Grindstone Creek	DeKalb	SW Sec. 10 T58N R30W	NW Sec. 02 T58N R30W
Heaths Creek	Pettis/Saline	SW Sec. 20 T48N R20W	N 1/2 Sec. 23 T48N R20W
Honey Creek	Nodaway	SW Sec. 25 T65N R34W	SW Sec. 25 T65N R34W
Horse Creek	Cedar	SW Sec. 09 T34N R28W	N 1/2 Sec. 02 T34N R28W
Huzzah Creek	Crawford	SE Sec. 29 T36N R02W	NE Sec. 18 T36N R02W
Jacks Fork River	Texas/Shannon	SE Sec. 35 T28N R 07W	NW Sec. 04 T27N R06W
Jones Creek	Jasper	N 1/2 Sec. 24 T27N R31W	NW Sec. 12 T27N R31W
Little Black River	Ripley	E 1/2 Sec. 09 T24N R03 E	SE Sec. 23 T24N R03E
Little Drywood Creek	Vernon	NW Sec. 06 T33N R31W	SE Sec. 30 T35N R31W
Little Fox River	Clark	SE Sec. 14 T66N R09W	SE Sec. 24 T66N R09W
Little Maries River	Maries	SW Sec. 34 T41N R10W	W 1/2 Sec. 26 T41N R10W
Little Niangua River	Hickory	NE Sec. 26 T37N R20 W	S 1/2 Sec. 35 T38N R20W
Little Piney Creek	Phelps	NE Sec. 05 T35N R08W	NE Sec. 31 T36N R08W
Little Whitewater River	Cape Girardeau	NW Sec. 01 T32N R09E	NE Sec. 16 T32N R10E
Locust Creek	Putnam	S 1/2 Sec. 10 T66N R20W	NE Sec. 34 T66N R20W
Long Branch Platte River	Nodaway	SE Sec. 30 T63N R34W	NE Sec. 29 T62N R34W
Loutre River	Montgomery	E 1/2 Sec. 17 T48N R06W	SE Sec. 10 T47N R06W
Main Ditch	Dunklin	S 1/2 Sec. 20 T20N R10E	NE Sec. 08 T19N R10E
Maple Slough Ditch	Mississippi	NW Sec. 34 T25N R 15E	Sec 3 & 4 Line T24N R15E
Marble Creek	Madison	E 1/2 Sec. 24 T32N R04E	E 1/2 Sec. 21 T32N R05E
Marrowbone Creek	Daviess	SW Sec. 18 T58N R27W	NE Sec. 08 T58N R27W
Meramec River	Dent	SE Sec. 13 T35N R05W	SW Sec. 11 T35N R05W
Middle Fabius River	Lewis	NE Sec. 15 T62N R09W	E 1/2 Sec. 04 T61N R08W
Mikes Creek	McDonald	E 1/2 Sec. 15 T22N R30W	SE Sec. 16 T22N R30W
Mill Creek	Phelps	NE Sec. 08 T36N R09W	NW Sec. 28 T37N R09W
Moniteau Creek	Cooper	SW Sec. 20 T46N R16W	E 1/2 Sec. 23 T46N R16W
No Creek	Livingston/Grundy	S 1/2 Sec. 31 T60N R2 3W	SE Sec. 01 T59N R24W
North Fork River	Douglas	SE Sec. 12 T26N R12W	SW Sec. 19 T26N R11W
North River	Marion	SE Sec. 24 T58N R08W	SE Sec. 32 T58N R07W
Petite Saline Creek	Cooper	W 1/2 Sec. 15 T48N R1 6W	SE Sec. 12 T48N R16W
Pomme De Terre River	Polk	NE Sec. 16 T31N R20W	SW Sec. 01 T31N R21W
Richland Creek	Morgan	NW Sec. 04 T43N R18W	SE Sec. 28 T44N R18W
River Aux Vases	Ste. Genevieve	E 1/2 Sec. 33 T37N R08E	SW Sec. 26 T37N R08E
Saline Creek	Miller	NW Sec. 23 T41N R14W	NW Sec. c. 25 T41N R14W
Saline Creek	Ste. Genevieve	NE Sec. 35 T36N R08 E	SW Sec. 32 T36N R09E
Sinking Creek	Reynolds	SE Sec. 32 T31N R04W	NE Sec. 35 T30N R02E
Sinking Creek	Shannon	SE Sec. 17 T30N R02E	SE Sec. 08 T30N R04W
South Fabius River	Marion	S Sec. 18 T59N R08W	SE Sec. 26 T59N R08W
South River	Marion	NW Sec. 06 T57N R05W	SW Sec. 21 T58N R05W
Spring Creek	Adair	N 1/2 Sec. 14 T63N R17W	NE Sec. 30 T63N R16W
Spring Creek	Douglas	NW Sec. 26 T25N R11W	NW Sec. 34 T25N R11W

Table J—Water Quality Standards Variances /Losing Streams

Note: The losing streams' beginning and ending locations in the FROM and TO columns are expressed in conventional "Section, Township, Range" format. For example, the FROM location for the first "Clear Creek" listing below should read as follows: "The southeast quarter of the northeast quarter of the northwest quarter of Section 10 in Township 25 North, Range 27 West."

<u>Stream Name</u>	<u>Counties</u>	<u>Miles From</u>	<u>To</u>
Calton Cr. 25 25N 27W	Barry	2.5 SE SE SE 18 25N 26W	SE SE SE
Calton Cr. 16 25N 26W	Barry	4.0 NE NE SE 12 25N 26W	W SW NW
Clear Cr. 31 26N 27W	Barry	4.0 SE NE NW 10 25N 27W	SE SE SW
Trib. to Clear Cr. 35 26N 28W	Barry	0.5 SE SW SW 35 26N 28W	NE SW NE
L. Flat Cr. 01 24N 27W	Barry	3.0 SE SE NE 36 25N 27W	NW NE NW
L. Flat Cr. 36 25N 27W	Barry	3.0 NW NW NW 35 25N 27W	SE SE NE
Trib. to Clear Cr. 35 26N 28W	Barry	0.5 SE SE NW 02 25N 28W	SE NE SE
Trib. to Clear Cr. 36 26N 28W	Barry	1.0 NW SE SW 01 25N 28W	NE SE SW
Trib. to Clear Cr. 27 26N 28W	Barry Lawrence	1.0 SW SE SW 34 26N 28W	NW NW SE
Trib. to Clear Cr. 09 25N 27W	Barry	1.0 SE NE SE 09 25N 27W	SW NW NW
Trib. to Clear Cr. 05 25N 27W	Barry	1.0 NW SW NW 08 25N 27W	NW NW SW
Hudson Cr. 16 25N 28W	Barry	4.0 SW SW SE 13 25N 28W	SW NW NW
Hudson Cr. 13 25N 28W	Barry	3.0 SW SE SE 29 25N 27W	SW SW SE
Trib. to Hudson Cr. 19 25N 27W	Barry	1.0 NW NE SE 20 25N 27W	SE SW SE
Trib. to Hudson Cr. 19 25N 27W	Barry	1.0 NW SE SW 30 25N 27W	NE SW SW
Trib. to Hudson Cr. 13 25N 28W	Barry	1.0 SW NE NE 23 25N 28W	NE NW SW
Trib. to Hudson Cr. 13 25N 28W	Barry	1.0 SW NW SE 18 25N 27W	NE SW NW
Trib. to Hudson Cr. 11 25N 28W	Barry	1.0 NE NE NE 12 25N 28W	NE SE SE
Trib. to Hudson Cr. 10 25N 28W	Barry	1.0 NE NW SW 14 25N 28W	SW NE SE
Flat Cr. 06 22N 27W	Barry	3.0 SW SW NW 23 22N 28W	SW SE NW
Trib. to Flat Cr. 22N 27W	Barry	1.5 SE SW NE 09 22N 27W S	E SE NE 05
Trib. to Flat Cr. 21 23N 27W	Barry	1.0 NE NW SE 22 23N 27W	NW SE SE
Dry Hollow 33 22N 27W	Barry	7.0 SW SW SW 10 21N 28W	NE SE NE
Browning Hollow 20 26N 26W	Barry Lawrence	3.0 SE NW SE 36 2 6N 27W	NE SW NE
Kelly Cr. 31 26N 27W	Barry	5.0 SE SE SW 02 25N 27W	SW SW SE
Spring R. 20 26N 26W	Barry Lawrence	2.0 NE SE SE 36 26N 26W	NW SE NE

<i>S. Indian Cr.</i>	<i>Barry Newton</i>	2.0 NE SW NE 33 24N 2	9W	NW NW SE
31 24N 29W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	2.0 SW SW SW 08 25N	25W	NW SW SE
04 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	1.5 NW NE NW 17 25N	25W	SW SW SE
04 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	4.0 SE SE NW 32 26N	25W	SW NW SE
35 26N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	2.0 NW SE NW 06 25N	25W	SW NE NE
05 25N 25W				
<i>Dodge Hollow</i>	<i>Barry</i>	3.0 SW SE SW 09 25N 25W		NW SE NE
12 25N 25W				
<i>Trib. to Dodge Hollow</i>	<i>Barry</i>	0.5 SE NW NW 19 25N	24W	NW NW NE
24 25N 25W				
<i>Trib. to Dodge Hollow</i>	<i>Barry</i>	2.0 NW SW NE 25 25N	25W	SW SE SE
12 25N 25W				
<i>Trib. to Dodge Hollow</i>	<i>Barry</i>	1.5 NW SE NE 22 25N	25W	NW NW NW
13 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 SE SE NE 31 26N	25W	NE NE NW
05 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 SE SW SW 05 25N	25W	SE SW SE
05 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 SE SE NE 07 25N	25W	SW NW SE
08 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 NW NW SW 08 25N	25W	NE SE NW
08 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 NE SW SE 32 26N	25W	SW NE NW
04 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	1.5 SE SE NW 09 25N	25W	NE NW SE
03 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 SW NW SE 09 25N	25W	SW SE NE
09 25N 25W				
<i>Trib. to L. Crane Cr.</i>	<i>Barry</i>	0.5 SE SW SW 10 25N	25W	NW NW SE
10 25N 25W				
<i>Capps Cr.</i>	<i>Barry</i>	5.0 SW SW SW 03 24N 28W		NW SE NW
21 25N 28W				
<i>Trib. to Capps Cr.</i>	<i>Barry</i>	1.0 NE SE SE 22 25N 28W		NW SE NE
28 25N 28W				
<i>Trib. to Capps Cr.</i>	<i>Barry</i>	1.5 NW SW SE 23 25N 28W		NE NE SE
28 25N 28W				
<i>Trib. to Capps Cr.</i>	<i>Barry</i>	1.5 NE NE SE 36 25N 28W		SE SE NW
35 25N 28W				
<i>Trib. to Capps Cr.</i>	<i>Barry</i>	2.0 NE NW SE 05 24N 28W		SW SW SE
27 25N 28W				
<i>Trib. to Capps Cr.</i>	<i>Barry</i>	4.0 NW NE SW 03 25N 28W		SW SE NW
12 25N 29W				
<i>Joyce Cr.</i>	<i>Barry</i>	2.0 SW SE NE 10 24N 28W		NE SW NW
16 24N 28W				
<i>Joyce Cr.</i>	<i>Barry</i>	2.0 SW SE SE 14 24N 28W		SW NW NE
16 24N 28W				
<i>Trib. to Joyce Cr.</i>	<i>Barry</i>	2.5 SE SE NE 26 24N 28W		NW SE SW
15 24N 28W				
<i>Trib. to Joyce Cr.</i>	<i>Barry</i>	1.0 NE SW NW 14 24N 28W		NW NW NW
15 24N 28W				
<i>Calls Hollow</i>	<i>Barry</i>	2.0 NW SE SE 13 24N 28W		SW NW SW
16 24N 27W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	1.0 SE SW SE 12 24N 2	8W	NW NW NE
12 24N 28W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	1.5 NE NW SW 07 24N 2	7W	NW SW NW
06 24N 27W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	1.0 SW SE NE 06 24N 2	7W	SE SW SE
33 25N 27W				

<i>Poque Cr.</i>	<i>Barry</i>	3.0	SE SE SE 36 24N 28W	NW NE SE
33 24N 28W				
<i>Trib. to Poque Cr.</i>	<i>Barry</i>	1.5	NW SW SW 01 23N 28W	NE SW SW
35 24N 28W				
<i>Trib. to Poque Cr.</i>	<i>Barry</i>	1.5	SW SE SE 02 23N 28W	SW SE SE
34 24N 28W				
<i>Trib. to Poque Cr.</i>	<i>Barry</i>	1.0	SE SE SE 26 24N 28W	NE NE SW
35 24N 28W				
<i>Dog Hollow</i>	<i>Barry</i>	3.0	NE SW NW 33 24N 27W	SW SE NE
26 24N 27W				
<i>Gunter Hollow</i>	<i>Barry</i>	2.5	SW SE SE 01 23N 28W	SE SE NW
29 24N 27W				
<i>Gunter Hollow</i>	<i>Barry</i>	4.0	NW SW SW 16 24N 27W	NW SE NW
12 24N 27W				
<i>Trib. to Gunter Hollow</i>	<i>Barry</i>	1.0	SE SE SE 36 24N 28W	NE NE SE
31 24N 27W				
<i>Trib. to Gunter Hollow</i>	<i>Barry</i>	1.5	SW SW SE 05 24N 27W	NW SE SE
09 24N 27W				
<i>Trib. to Gunter Hollow</i>	<i>Barry</i>	1.0	SW SE SW 08 24N 27W	SE NE NW
16 24N 27W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	2.0	SE SW SW 21 25N 2 6W	NW SW SW
33 25N 26W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	1.5	SW NE SE 21 25N 2 6W	SE NW NE
32 25N 26W				
<i>Prairie Run Hollow</i>	<i>Barry</i>	5.0	SW NE SW 01 25N 27W	SW SE SW
25 25N 27W				
<i>Trib. to Prairie Run Hollow</i>	<i>Barry</i>	1.5	NE NE SE 07 25N 28W	NW SW NE
13 25N 27W				
<i>Trib. to L. Flat Cr.</i>	<i>Barry</i>	2.0	NE SW SE 11 25N 2 7W	SW SE SW
13 25N 27W				
<i>Todd Hollow</i>	<i>Barry</i>	3.0	SW NW NW 14 25N 27W	NW NE SE
26 25N 27W				
<i>Woodward Cr.</i>	<i>Barry</i>	3.0	SE NE NE 11 23N 28W	SW SE SW
04 23N 28W				
<i>Trib. to Woodward Cr.</i>	<i>Barry</i>	1.0	SW NE NW 14 23N 28W	SE NW NW
10 23N 28W				
<i>Trib. to Woodward Cr.</i>	<i>Barry</i>	0.5	NE NW SW 09 23N 28W	SW SE SW
04 23N 28W				
<i>Zerbert Branch</i>	<i>Barry</i>	4.0	SW SE SW 33 25N 28W	SE NE NW
24 25N 29W				
<i>Trib. to Zerbert Br.</i>	<i>Barry</i>	2.0	NW NE NE 33 25N 2 8W	NW SW SE
29 25N 28W				
<i>Ledgerwood Hollow</i>	<i>Barry</i>	0.5	NE NW SW 10 22N 25W	NE SE SE
09 22N 25W				
<i>Trib. to Mill Cr.</i>	<i>Barry</i>	0.5	NW SE SE 10 22N 25W	NE NW NW
15 22N 25W				
<i>Trib. to Mill Cr.</i>	<i>Barry</i>	0.5	NW SW SE 10 22N 25W	NE NW NW
15 22N 25W				
<i>Trib. to L. Bonne Femme Cr.</i>	<i>Boone</i>	1.0	SE SE NW 0 1 47N 13W	SE NE NW
12 47N 13W				
<i>Trib. to Clear Cr.</i>	<i>Boone</i>	1.0	SE SW SW 31 48N 12W	SW SE SW
30 48N 12W				
<i>Trib. to Gans Cr.</i>	<i>Boone</i>	1.0	SE SW NE 06 47N 12W	NE NE NW
07 47N 12W				
<i>Slate Cr.</i>	<i>Boone</i>	1.5	SE SW SE 34 46N 12W	NW NE SE
09 45N 12W				
<i>Trib. to Jamerson Cr.</i>	<i>Boone</i>	2.0	NE SE SE 21 46N 12W	SW NE SW
29 46N 12W				
<i>Bonne Femme Cr.</i>	<i>Boone</i>	4.0	NW NE NW 10 47N 12W	NE NE SW
20 47N 12W				
<i>Trib. to Bonne Femme Cr.</i>	<i>Boone</i>	1.5	SW NE SE 29 4 7N 12W	SE SE NW
30 47N 12W				

<i>Trib. to Fowler Cr.</i>					
24 46N 12W	Boone	1.5	SW SW NW 13 46N 12	W	SE NE SW
<i>Bass Cr.</i>	Boone	0.5	SW NW NE 28 47N 12W		SE NW NW
28 47N 12W					
<i>Fox Hollow Br.</i>	Boone	1.5	NE NW SE 07 46N 12W		NW SW NW
12 46N 13W					
<i>Cane Cr.</i>	Butler	4.0	NW NW SW 23 26N 04E		SE SE NE
36 26N 04E					
<i>Cane Cr.</i>	Butler	1.0	NW NE SW 25 26N 04E		SE SE NE
36 26N 04E					
<i>Trib. to Missouri R.</i>	Callaway	0.5	NE SE NE 11 44N	11W	SW SE SW
12 44N 11W					
<i>Trib. to Missouri R.</i>	Callaway	0.5	NE SE NE 11 44	N 11W	NE SE SW
12 44N 11W					
<i>Prairie Hollow</i>	Camden	2.0	NW NW NW 27 38N 18W		NW NE NW
14 38N 18W					
<i>Trib. to Linn Cr.</i>	Camden	1.0	NE NE SW 19 38N 16W		SE NW SW
17 38N 16W					
<i>Libby Hollow</i>	Camden	2.0	SE SW SE 15 38N 17W		NE SW SW
02 38N 17W					
<i>Murphy Cr.</i>	Camden	1.0	NE SW NW 33 37N 14W		NE NW NE
29 37N 14W					
<i>Conns Cr.</i>	Camden	3.5	SW NW SE 26 37N 14W		NE SW SE
17 37N 14W					
<i>Deberry Cr.</i>	Camden	2.0	SE SW SE 13 37N 14W		NW SW NW
26 37N 14W					
<i>Forbes Br.</i>	Camden	2.5	NW SW SW 09 37N 16W		NE SE NW
11 37N 16W					
<i>Mill Cr.</i>	Camden	4.5	SW NW NE 28 36N 15W		SW SW SE
35 37N 15W					
<i>Racetrack Hollow</i>	Camden	5.5	NE NW NW 09 37N 16W		SW SW NW
35 38N 17W					
<i>Racetrack Hollow and trib.</i>	Camden	1.5	SW SE NW 2 5 38N 17W		SW SW NW
35 38N 17W					
<i>Trib. to Racetrack Hollow</i>	Camden	0.3	NW NW NW 31 38N 16W		SW SW NW
31 38N 16W					
<i>Sweezie Hollow</i>	Carter	0.5	SW SW NE 31 27N 01E		SW SE SE
31 27N 01E					
<i>Bear Spring Hollow</i>	Carter	1.0	SW NW NE 02 27N 01	E	SW SW NE
03 27N 01E					
<i>Right Fk.</i>	Carter	2.0	SE NE SE 02 27N 01E		NE NE SW
04 27N 01E					
<i>Carter Cr.</i>	Carter	7.0	NE 03 27N 01E		NE NE NW
32 27N 01E					
<i>Trib. to S. Fk. Big Brushy Cr.</i>	Carter	2.0	NE NE SW 01 27N 01E		NE NE NE
07 27N 02E					
<i>Middle Fk.</i>	Carter	3.0	SW SW SW 28 26N 02E		NE NW SE
10 25N 02E					
<i>Middle Brushy Cr.</i>	Carter Wayne	3.5	NW SE SW 21 2 7N 03E		NE SW NW
12 27N 03E					
<i>L. Pike Cr.</i>	Carter	5.0	SW NE NW 18 26N 02W		NE NW NW
01 26N 02W					
<i>Buchanan Valley</i>	Carter Reynolds	4.0	NW SW NE 20 2 8N 01E		NE NE SW
04 27N 01E					
<i>Big Brushy Cr.</i>	Carter Wayne	3.5	NE NE SE 08 27N 0 3E		NE SW NW
12 27N 03E					
<i>Big Barren Cr.</i>	Carter Ripley	16.0	NE NW SW 06 25N 02W		NW SE NW
28 25N 01E					
<i>Big Barren Cr.</i>	Carter	1.5	NE SW NE 30 26N 02W		SE SW SE
32 26N 02W					
<i>Trib. to Snag Br.</i>	Cedar	0.5	SE SW NE 31 34N 26W		SW NE SW
31 34N 26W					

<i>Terrell Cr.</i>	<i>Christian</i>	2.5	<i>NW SE NW 05 27N 23W</i>	<i>SW NE NE</i>
<i>03 27N 23W</i>				
<i>Terrell Cr.</i>	<i>Christian</i>	1.0	<i>SW NW SE 01 27N 24W</i>	<i>SW NW SE</i>
<i>06 27N 23W</i>				
<i>Tory Cr.</i>	<i>Christian</i>	3.0	<i>SE NW NW 12 25N 22W</i>	<i>NE NW SE</i>
<i>27 26N 22W</i>				
<i>Finley Cr.</i>	<i>Christian</i>	1.0	<i>SE SW NW 13 27N 21W</i>	<i>SE NW SW</i>
<i>18 27N 20W</i>				
<i>Finley Cr.</i>	<i>Christian</i>	2.5	<i>NW NW SE 18 27N 19W</i>	<i>SE NE NW</i>
<i>14 27N 20W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.7	<i>SW SE SW 26 27</i>	<i>N 21W</i>
<i>26 27N 21W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>SE SE NW 21 27</i>	<i>N 21W</i>
<i>28 27N 21W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.5	<i>SW SE NW 18 26</i>	<i>N 21W</i>
<i>01 26N 22W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.5	<i>SW NE NW 24 27</i>	<i>N 22W</i>
<i>30 27N 21W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.0	<i>NE SW SE 01 27</i>	<i>N 21W</i>
<i>12 27N 21W</i>				
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE SE NE 26 27</i>	<i>N 22W</i>
<i>35 27N 22W</i>				
<i>Elk Valley</i>	<i>Christian</i>	0.5	<i>NE SE NE 32 27N 21W</i>	<i>SE NE NW</i>
<i>32 27N 21W</i>				
<i>Trib. to McCafferty Hollow</i>	<i>Christian</i>	2.0	<i>NE NE SW 22 27N 22W</i>	<i>NE SW NE</i>
<i>33 27N 22W</i>				
<i>Trib. to Pickerel Cr.</i>	<i>Christian</i>	1.5	<i>NE SW SW 04 27N 24W</i>	<i>NW SW NE</i>
<i>33 28N 24W</i>				
<i>Turnback Cr.</i>	<i>Christian</i>	3.0	<i>SE NE NE 17 27N 24W</i>	<i>SW SE NW</i>
<i>31 28N 24W</i>				
<i>Saunders Valley</i>	<i>Christian</i>	1.5	<i>NW NW NE 09 27N 22 W</i>	<i>SW SW NW</i>
<i>33 28N 22W</i>				
<i>Trib. to Spring Cr.</i>	<i>Christian</i>	3.0	<i>NE NW NW 19 27 N 23W</i>	<i>NW SW NW</i>
<i>36 27N 24W</i>				
<i>Carter Hollow</i>	<i>Christian</i>	2.0	<i>NE SE SW 26 27N 20W</i>	<i>NE NE NW</i>
<i>22 27N 20W</i>				
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>SE SE NW 09 26N 2 1W</i>	<i>SW SW NW</i>
<i>09 26N 21W</i>				
<i>Trib. to E. Prong Goff Cr.</i>	<i>Christian</i>	2.0	<i>SW SE S W 13 25N 22W</i>	<i>SE SE NW</i>
<i>15 25N 22W</i>				
<i>Trib. to E. Prong Goff Cr.</i>	<i>Christian</i>	1.5	<i>SW SE N E 23 25N 22W</i>	<i>NE NW SE</i>
<i>15 25N 22W</i>				
<i>Trib. to W. Prong Goff Cr.</i>	<i>Christian Stone</i>	2.0	<i>S W NE NW 34 25N 22W</i>	<i>SE NE NW</i>
<i>29 25N 22W</i>				
<i>Trib. to W. Prong Goff Cr.</i>	<i>Christian Stone</i>	2.0	<i>S W SE NW 27 25N 22W</i>	<i>NE SW NW</i>
<i>20 25N 22W</i>				
<i>Silver Lake Br.</i>	<i>Christian Stone</i>	2.0	<i>SW NE SW 35 27N 23W</i>	<i>NE NE NE</i>
<i>14 26N 23W</i>				
<i>Dry Crane Cr.</i>	<i>Christian Stone</i>	5.0	<i>SW SE NE 32 27 N 23W</i>	<i>NE NW NE</i>
<i>34 26N 23W</i>				
<i>Trib. to Dry Crane Cr.</i>	<i>Christian Stone</i>	2.0	<i>SE NE SE 34 27N 23W</i>	<i>NE SW NW</i>
<i>10 26N 23W</i>				
<i>Wolfden Cr.</i>	<i>Christian</i>	1.0	<i>SW NW SE 35 27N 23W</i>	<i>NW SE SE</i>
<i>36 27N 23W</i>				
<i>McCullah Hollow</i>	<i>Christian Stone</i>	7.0	<i>NE SW NW 21 27N 24W</i>	<i>NW NE SE</i>
<i>13 26N 24W</i>				
<i>Terrell Cr.</i>	<i>Christian</i>	2.0	<i>NW NW SW 14 27N 24W</i>	<i>SE SW SW</i>
<i>01 27N 24W</i>				
<i>Trib. to Terrell Cr.</i>	<i>Christian</i>	0.3	<i>NW SW NE 04 2 7N 23W</i>	<i>SE NW NE</i>
<i>04 27N 23W</i>				
<i>Spring Cr.</i>	<i>Christian Stone</i>	4.0	<i>NE NE NE 26 27N 2 4W</i>	<i>SW NW NE</i>
<i>12 26N 24W</i>				

<i>Trib. to Wilson Cr.</i>	<i>Christian</i>	1.0	<i>SW NW NW 31 28N</i>	22W	<i>SE SW SW</i>
<i>25 28N 23W</i>					
<i>Green Valley Cr.</i>	<i>Christian</i>	4.5	<i>NW SW SW 27 27N 2</i>	3W	<i>SW NW SE</i>
<i>12 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	1.5	<i>NE SW SW</i>	21 27N 23W	<i>SE NE NW</i>
<i>27 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	1.0	<i>SE NE NE</i>	21 27N 23W	<i>NE SW SE</i>
<i>22 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	1.0	<i>NW SE SE</i>	27 27N 23W	<i>SW SW SE</i>
<i>22 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	1.0	<i>NE SW NW</i>	35 27N 23W	<i>NW SE NE</i>
<i>26 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	0.5	<i>NW SE SE</i>	23 27N 23W	<i>NW NE SE</i>
<i>23 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	0.5	<i>SE SW SW</i>	24 27N 23W	<i>SW NE NW</i>
<i>24 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	0.5	<i>SE SE SW</i>	14 27N 23W	<i>SW SW NW</i>
<i>13 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	1.0	<i>NE NW NW</i>	14 27N 23W	<i>NE NW NW</i>
<i>13 27N 23W</i>					
<i>Trib. to Green Valley Cr.</i>	<i>Christian</i>	0.5	<i>NW SE SW</i>	11 27N 23W	<i>NW NE NE</i>
<i>14 27N 23W</i>					
<i>Luce Br.</i>	<i>Christian</i>	1.5	<i>NW SW NW 21 27N 23W</i>		<i>NE SW SW</i>
<i>09 27N 23W</i>					
<i>Luce Br.</i>	<i>Christian</i>	1.0	<i>SE NE NW 09 27N 23W</i>		<i>NW NE SE</i>
<i>04 27N 23W</i>					
<i>Trib. to Luce Br.</i>	<i>Christian</i>	0.5	<i>SW NW SW 16 27N</i>	23W	<i>SE NW NW</i>
<i>16 27N 23W</i>					
<i>Trib. to Luce Br.</i>	<i>Christian</i>	1.5	<i>NW NW NE 20 27N</i>	23W	<i>NW SW SW</i>
<i>09 27N 23W</i>					
<i>Trib. to Luce Br.</i>	<i>Christian</i>	1.0	<i>NW NW NW 15 27N</i>	23W	<i>SE SW SE</i>
<i>04 27N 23W</i>					
<i>Trib. to Luce Br.</i>	<i>Christian</i>	0.5	<i>SE NW NE 16 27N</i>	23W	<i>NE NE SE</i>
<i>09 27N 23W</i>					
<i>Trib. to Spring Cr.</i>	<i>Christian</i>	1.0	<i>NW SW SW 20 27</i>	N 23W	<i>NW NE NW</i>
<i>30 27N 23W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	0.5	<i>SW NW SW 31 28N</i>	22W	<i>NE NW NE</i>
<i>06 27N 22W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	2.5	<i>NW SW SE 36 28N</i>	21W	<i>NW NE SE</i>
<i>04 27N 21W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	0.5	<i>NE NW SW 02 27N 2</i>	1W	<i>NW NW NE</i>
<i>10 27N 21W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	0.5	<i>SW SW NW 11 27N 2</i>	1W	<i>SW NE NE</i>
<i>10 27N 21W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	1.5	<i>SW SW NE 10 27N 2</i>	1W	<i>NW NE SE</i>
<i>04 27N 21W</i>					
<i>Trib. to Hunt Br.</i>	<i>Christian</i>	1.0	<i>SW SW NE 36 28N 2</i>	1W	<i>NW NW SW</i>
<i>24 28N 21W</i>					
<i>Farmer Br.</i>	<i>Christian Greene</i>	2.0	<i>SE SE NW 36 28N</i>	21W	<i>SE SW SW</i>
<i>27 28N 21W</i>					
<i>Trib. to Farmer Br.</i>	<i>Christian</i>	1.0	<i>SE NW SW 35 28</i>	N 21W	<i>NW NW NW</i>
<i>34 28N 21W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	2.0	<i>NE SE NE 15 27N</i>	22W	<i>NE NE NE</i>
<i>03 27N 22W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	2.0	<i>NE SE NW 09 27N</i>	21W	<i>NE SE NW</i>
<i>05 27N 21W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	1.5	<i>SW SE SW 04 27N</i>	22W	<i>NE NE SE</i>
<i>32 28N 22W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	0.5	<i>NW SW SW 34 28N</i>	22W	<i>SE NW NE</i>
<i>33 28N 22W</i>					
<i>Trib. to James R.</i>	<i>Christian</i>	0.5	<i>SW NW NE 34 28N</i>	22W	<i>SW NW NW</i>
<i>34 28N 22W</i>					

<i>Trib. to James R.</i>	<i>Christian</i>	3.0 NW SE NW 15 27N	22W	NW NW SE
20 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	1.0 NE SE NW 09 27N	22W	SE SW NW
16 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 NE SE SE 08 27N	22W	NE SE NE
17 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 SE NW SE 08 27N	22W	NW SE NE
17 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 NW NW NE 21 27N	22W	NE NW SW
21 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	1.5 NE SW SE 15 27N	22W	NW NW SW
21 27N 22W				
<i>McCafferty Hollow</i>	<i>Christian</i>	1.0 NE NW SW 26 27N	22W	SW NE NE
33 27N 22W				
<i>McCafferty Hollow</i>	<i>Christian</i>	0.5 SW NE NE 33 27N	22W	SW SE NW
33 27N 22W				
<i>Trib. to McCafferty Hollow</i>	<i>Christian</i>	0.5 SW NW SW 22 27N 22W		SE SE NE
28 27N 22W				
<i>Trib. to McCafferty Hollow</i>	<i>Christian</i>	1.0 NE NE SW 22 27N 22W		NE SW NW
27 27N 22W				
<i>Spout Spring Hollow</i>	<i>Christian</i>	1.0 NE NW NW 20 27N	21W	NW NE NW
29 27N 21W				
<i>Spout Spring Hollow</i>	<i>Christian</i>	0.5 NE SE SE 12 27	N 22W	SW NE NW
18 27N 21W				
<i>Trib. to Spout Spring Hollow</i>	<i>Christian</i>	0.5 SE SW NE 13 27N 22W		SE NE SW
18 27N 21W				
<i>Trib. to Spout Spring Hollow</i>	<i>Christian</i>	0.5 SW NE SE 07 27N 21W		SE NE SW
18 27N 21W				
<i>Trib. to Spout Spring Hollow</i>	<i>Christian</i>	0.5 NE NW NE 18 27N 21W		SE NE SE
18 27N 21W				
<i>Trib. to sink to James R.</i>	<i>Christian</i>	2.0 SW SE NW 14 27N 22W		NE SE NW
02 27N 22W				
<i>Trib. to sink to James R.</i>	<i>Christian</i>	1.0 SE SE NE 11 27N 22W		NW SW SE
02 27N 22W				
<i>Trib. to sink to James R.</i>	<i>Christian</i>	0.5 NE SE SE 02 27N 22W		SW NW SE
02 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	1.5 SE NW NW 07 27N	21W	SE NE NW
06 27N 21W				
<i>Trib. to James R.</i>	<i>Christian</i>	3.0 NE SE NW 07 27N	21W	SE SE NW
31 28N 21W				
<i>Trib. to James R.</i>	<i>Christian</i>	1.0 SE SW NW 08 27N	21W	NE SE NW
05 27N 21W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 SE SE NW 08 27N	21W	SW SW SE
05 27N 21W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 SE SW NE 08 27N	21W	SW SW SE
05 27N 21W				
<i>Trib. to James R.</i>	<i>Christian</i>	1.0 NW SE SE 09 27N	22W	NE SW NW
16 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 SE NW SE 09 27N	22W	SE NE NW
16 27N 22W				
<i>Trib. to James R.</i>	<i>Christian</i>	0.5 NE NE SE 35 28N	22W	NW SW NE
35 28N 22W				
<i>Trib. to McCullah Hollow</i>	<i>Christian</i>	0.5 SE NW SW 33 27N 24W		SE SW SE
34 27N 24W				
<i>Trib. to McCullah Hollow</i>	<i>Christian</i>	1.5 SW NW SE 34 27N 24W		NE SW SE
34 27N 24W				
<i>Terrell Cr.</i>	<i>Christian</i>	1.0 SE SW SE 15 27N 24W		SE SE SW
22 27N 24W				
<i>Terrell Cr.</i>	<i>Christian</i>	1.0 NW NE NE 32 27N 24W		SW NW SE
28 27N 24W				
<i>Pedelo Cr.</i>	<i>Christian</i>	0.5 NW NW NE 35 28N 19W		SE NW SW
26 28N 19W				

<i>Squaw Run Cr.</i>	<i>Christian</i>	3.5	<i>SW SW SW 20 27N 18W</i>	<i>SE SW NE</i>
<i>14 27N 19W</i>				
<i>Trib. to Squaw Run Cr.</i>	<i>Christian</i>	1.0	<i>NW SE SE 19</i>	<i>27N 18W</i>
<i>25 27N 19W</i>				<i>NW NE NE</i>
<i>Trib. to Squaw Run Cr.</i>	<i>Christian</i>	0.5	<i>NW NE SW 19</i>	<i>27N 18W</i>
<i>24 27N 19W</i>				<i>SE SW SE</i>
<i>Trib. to Squaw Run Cr.</i>	<i>Christian</i>	1.0	<i>NE SE SE 13</i>	<i>27N 19W</i>
<i>14 27N 19W</i>				<i>SE SE SE</i>
<i>Trib. to James R.</i>	<i>Christian</i>	1.0	<i>SW SW SW 04 27N 2</i>	<i>2W</i>
<i>32 28N 22W</i>				<i>NE SW SE</i>
<i>Carter Hollow</i>	<i>Christian</i>	0.5	<i>NE NE NW 22 27N 20W</i>	<i>NW NW SW</i>
<i>15 27N 20W</i>				
<i>Carter Hollow</i>	<i>Christian</i>	0.5	<i>NW SE SE 26 27N 20W</i>	<i>NE SE SW</i>
<i>26 27N 20W</i>				
<i>Trib. to Mooney Hollow</i>	<i>Christian</i>	0.5	<i>SE NE NW 35</i>	<i>28N 20W</i>
<i>34 28N 20W</i>				<i>SE SE NE</i>
<i>Trib. to Big Hollow</i>	<i>Christian</i>	1.5	<i>SW NE NE 35 28N</i>	<i>20W</i>
<i>02 27N 20W</i>				<i>NW SW NE</i>
<i>Drainage to sinkhole</i>	<i>Christian</i>	1.0	<i>NW SW NE 01 2</i>	<i>7N 21W</i>
<i>12 27N 21W</i>				<i>SW NW NW</i>
<i>Trib. to Parched Corn Br.</i>	<i>Christian</i>	1.0	<i>NE SE NW</i>	<i>06 27N 20W</i>
<i>06 27N 20W</i>				<i>SE SE SW</i>
<i>Trib. to Parched Corn Br.</i>	<i>Christian</i>	0.5	<i>SE NE NW</i>	<i>07 27N 20W</i>
<i>07 27N 20W</i>				<i>SE SE SW</i>
<i>Trib. to Parched Corn Br.</i>	<i>Christian</i>	0.5	<i>NE SW SE</i>	<i>07 27N 20W</i>
<i>07 27N 20W</i>				<i>SE SE SW</i>
<i>Trib. to Parched Corn Hollow</i>	<i>Christian</i>	1.0	<i>NW SW</i>	<i>SE 04 27N 20W</i>
<i>08 27N 20W</i>				<i>NW NW SW</i>
<i>Trib. to Parched Corn Hollow</i>	<i>Christian</i>	0.5	<i>NE SW</i>	<i>NW 05 27N 20W</i>
<i>08 27N 20W</i>				<i>NW NE NW</i>
<i>Trib. to Parched Corn Hollow</i>	<i>Christian</i>	3.0	<i>NE NW</i>	<i>NE 33 28N 20W</i>
<i>05 27N 20W</i>				<i>SW NE SE</i>
<i>Trib. to Parched Corn Hollow</i>	<i>Christian</i>	1.0	<i>NE SW NW 33 28N 20W</i>	<i>NW NE SE</i>
<i>32 28N 20W</i>				
<i>Trib. to Parched Corn Hollow</i>	<i>Christian</i>	1.5	<i>NW NE</i>	<i>SE 31 28N 20W</i>
<i>32 28N 20W</i>				<i>NE SE SW</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NW NW SE 20 27</i>	<i>N 20W</i>
<i>17 27N 20W</i>				<i>NW SW SE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE SE SE 20 27</i>	<i>N 20W</i>
<i>17 27N 20W</i>				<i>NE NE SE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.0	<i>NW SW NW 30 27</i>	<i>N 20W</i>
<i>24 27N 21W</i>				<i>SW NE NW</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.0	<i>NW SE SW 19 27</i>	<i>N 20W</i>
<i>24 27N 21W</i>				<i>NE SE NW</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>SE SW SE 13 27</i>	<i>N 21W</i>
<i>24 27N 21W</i>				<i>SW NE NW</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE NE NE 23 27</i>	<i>N 21W</i>
<i>14 27N 21W</i>				<i>SW NW SE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>SE NE NE 27 27</i>	<i>N 21W</i>
<i>22 27N 21W</i>				<i>SE SE SE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	1.0	<i>SW SE SE 16 27</i>	<i>N 21W</i>
<i>28 27N 21W</i>				<i>NW NE NE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>SE NE NE 15 27</i>	<i>N 21W</i>
<i>14 27N 21W</i>				<i>SW SW NE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE NW NW 14 27</i>	<i>N 21W</i>
<i>14 27N 21W</i>				<i>NE SE NW</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE NE SW 11 27</i>	<i>N 21W</i>
<i>14 27N 21W</i>				<i>SW NE NE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NE NE SE 11 27</i>	<i>N 21W</i>
<i>14 27N 21W</i>				<i>SW NE NE</i>
<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5	<i>NW NW SE 12 27</i>	<i>N 21W</i>
<i>13 27N 21W</i>				<i>SE NE NW</i>

<i>Trib. to Finley Cr.</i>	<i>Christian</i>	0.5 NW SE SE 14 27	N 22W	SE NW NW
24 27N 22W				
<i>Drainage to sinkhole</i>	<i>Christian</i>	0.5 SE SE NW 28 2	7N 20W	NW SE SE
29 27N 20W				
<i>Drainage to sinkhole</i>	<i>Christian</i>	0.5 NW NE NE 30 2	7N 20W	SW SW NE
30 27N 20W				
<i>Garrison Br.</i>	<i>Christian</i>	0.5 SW SE SW 24 27N 21W		NW SW SW
24 27N 21W				
<i>Garrison Br.</i>	<i>Christian</i>	0.2 SE NW SE 23 27N 21W		NE NE SW
23 27N 21W				
<i>Richwood Br.</i>	<i>Christian</i>	0.5 NW SW NW 16 27N 21W		SE NE SE
17 27N 21W				
<i>Trib. to Richwood Br.</i>	<i>Christian</i>	1.0 SW SW SW 10	27N 21W	SW SW SW
16 27N 21W				
<i>Elk Valley</i>	<i>Christian</i>	5.0 SE NW NE 13 26N 21W		NE SW NW
33 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	2.5 NW NW NE 29 27	N 20W	SW SW SE
35 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 NE NW NW 29 27	N 20W	SE SW NW
29 27N 20W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 SE NW SE 25 27N	21W	NE SW SE
36 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.2 SE NE NW 31 27	N 20W	NW NE NW
31 27N 20W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SE SE SE 32 27	N 21W	SE SW NW
33 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 SW SE NW 04 26	N 21W	NW NW SE
33 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 NE SE NE 34 27	N 21W	SE NW NW
03 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 NW NW SW 35 27	N 21W	NW SE SE
34 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 SW SW SE 35 27	N 21W	NE SW NE
03 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SW SE NW 36 27	N 21W	NE SW SW
36 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 NE NW NE 06 26	N 20W	SW NE SE
36 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	2.0 SW NE NW 07 26	N 20W	SW SW SE
35 27N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SE NW SW 01 26	N 21W	SW NW NW
01 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.5 NE NE SW 10 26N	21W	NE SW NE
03 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.5 NE NW NE 15 26	N 21W	NE SW NE
03 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 NE NE NE 15 26	N 21W	SW SE SE
10 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	1.0 NW SW NW 14 26	N 21W	SW NW SE
11 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SE SE NW 14 26	N 21W	SW SE SE
11 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.2 NE NW SE 14 26	N 21W	NW SE NE
14 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SW NE SE 14 26	N 21W	NW NE NE
14 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 NE NW SW 13 26	N 21W	NW NW NW
13 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 NE NE NW 13 26	N 21W	NW NW NW
13 26N 21W				
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5 SE NE SW 12 26	N 21W	NW SE SE
11 26N 21W				

<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5	<i>SW NW NW 12 26</i>	<i>N 21W</i>	<i>NW SE NE</i>
<i>11 26N 21W</i>					
<i>Trib. to Elk Valley</i>	<i>Christian</i>	0.5	<i>SW NE SW 35 27</i>	<i>N 21W</i>	<i>SW NW NW</i>
<i>02 26N 21W</i>					
<i>Hog Cr.</i>	<i>Christian</i>	2.0	<i>SE SW NW 22 26N 21W</i>		<i>SE SE NE</i>
<i>08 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	1.0	<i>NW NE NW 15 26N 2</i>	<i>1W</i>	<i>SE NE NW</i>
<i>16 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>SW NE NE 22 26N 2</i>	<i>1W</i>	<i>NE NE NW</i>
<i>22 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>NE NE SE 15 26N 2</i>	<i>1W</i>	<i>SE SE SW</i>
<i>15 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>SE SW NE 15 26N 2</i>	<i>1W</i>	<i>NW NW SW</i>
<i>15 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>NE NE SE 09 26N 2</i>	<i>1W</i>	<i>SE SW SW</i>
<i>09 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>SE NE SE 09 26N 2</i>	<i>1W</i>	<i>NW SW SE</i>
<i>09 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	0.5	<i>NE NE NW 21 26N 2</i>	<i>1W</i>	<i>NW SW NE</i>
<i>16 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	1.0	<i>SE NE SE 17 26N 2</i>	<i>1W</i>	<i>SE SW SW</i>
<i>09 26N 21W</i>					
<i>Trib. to Hog Cr.</i>	<i>Christian</i>	1.0	<i>NW NE NE 09 26N 2</i>	<i>1W</i>	<i>NE NE NE</i>
<i>08 26N 21W</i>					
<i>Trib. to Spring Cr.</i>	<i>Christian</i>	1.0	<i>NW NE SE 31 27</i>	<i>N 23W</i>	<i>SW NW SW</i>
<i>06 26N 23W</i>					
<i>Turnback Cr.</i>	<i>Christian</i>	7.0	<i>NW NE SW 20 27N 24W</i>		<i>NW NE NE</i>
<i>25 28N 25W</i>					
<i>Woods Fk.</i>	<i>Christian</i>	2.0	<i>SW NE NW 30 26N 21W</i>		<i>SE SE NW</i>
<i>32 26N 21W</i>					
<i>Trib. to Clarks Fk.</i>	<i>Cooper</i>	1.5	<i>NW SW NW 24 47N 1</i>	<i>6W</i>	<i>NW NW SW</i>
<i>14 47N 16W</i>					
<i>Cherry Valley</i>	<i>Crawford</i>	8.0	<i>NE SW SW 08 36N 03W</i>		<i>NE SE SE</i>
<i>03 37N 03W</i>					
<i>Trib. to Cherry Valley</i>	<i>Crawford</i>	2.0	<i>NE NE NE 13</i>	<i>36N 04W</i>	<i>NE SW NW</i>
<i>05 36N 03W</i>					
<i>Trib. to Yadkin Cr.</i>	<i>Crawford</i>	4.0	<i>SE NW SE 24 37N</i>	<i>05W</i>	<i>SW NE NW</i>
<i>05 37N 04W</i>					
<i>Whittenburg Cr.</i>	<i>Crawford</i>	4.0	<i>SE SE NE 34 37N 04W</i>		<i>SE SE NW</i>
<i>11 37N 04W</i>					
<i>Black Jack Cr.</i>	<i>Crawford</i>	2.5	<i>NW SE NW 25 37N 04W</i>		<i>NE NE NW</i>
<i>28 37N 03W</i>					
<i>Black Jack Cr.</i>	<i>Crawford</i>	2.0	<i>NW SE SW 35 37N 04W</i>		<i>NE SW NE</i>
<i>30 37N 03W</i>					
<i>Dry Cr.</i>	<i>Crawford</i>	11.5	<i>NW NW NW 14 35N 03W</i>		<i>NE NE SW</i>
<i>14 37N 03W</i>					
<i>Sinking Cr.</i>	<i>Dade</i>	2.5	<i>SW NW NE 12 30N 26W</i>		<i>NE SW NE</i>
<i>10 30N 26W</i>					
<i>Fourmile Cr.</i>	<i>Dallas</i>	0.5	<i>NE NE 05 33N 18W</i>		<i>NE NE SW</i>
<i>32 34N 18W</i>					
<i>Rocky Pond Hollow</i>	<i>Dent</i>	3.0	<i>NE NW SE 22 34N 06W</i>		<i>SW SW SE</i>
<i>08 34N 06W</i>					
<i>Trib. to Simmons Br.</i>	<i>Dent</i>	1.0	<i>SW NE NE 22 34N 05</i>	<i>W</i>	<i>NW NE NW</i>
<i>14 34N 05W</i>					
<i>Trib. to Spring Cr.</i>	<i>Dent</i>	1.0	<i>SE SW NW 23 34N 06W</i>		<i>SW SE NE</i>
<i>14 34N 06W</i>					
<i>Hyer Br.</i>	<i>Dent</i>	1.0	<i>SE SE NW 20 35N 07W</i>		<i>NE NE SW</i>
<i>17 35N 07W</i>					
<i>Gladden Cr.</i>	<i>Dent Shannon</i>	11.0	<i>SE NE SW 05 32N 05W</i>		<i>SE SW SW</i>
<i>13 31N 06W</i>					
<i>Dry Valley Cr.</i>	<i>Dent</i>	7.0	<i>NE SW NW 23 33N 05W</i>		<i>NW SE SW</i>
<i>13 34N 05W</i>					

<i>Standing Rock Cr.</i>	<i>Dent</i>	<i>5.0 SW NW NE 30 33N 04W</i>	<i>NE NE SW</i>
<i>05 32N 05W</i>			
<i>Orchard Mill Hollow</i>	<i>Dent</i>	<i>2.0 NW NW NE 32 33N 04W</i>	<i>SW SW NW</i>
<i>09 32N 04W</i>			
<i>Black Oak Cr.</i>	<i>Dent Phelps</i>	<i>2.0 SE SW NE 10 34N 08</i>	<i>W</i>
<i>04 34N 08W</i>			
<i>Hodge Cr.</i>	<i>Dent</i>	<i>2.5 SW SW NW 09 32N 04W</i>	<i>SE NW NW</i>
<i>28 32N 04W</i>			
<i>Pankey Br.</i>	<i>Dent Shannon</i>	<i>3.0 SW NW NW 19 32N 04W</i>	<i>NW SE SW</i>
<i>06 31N 04W</i>			
<i>Stringer Br.</i>	<i>Dent</i>	<i>2.0 NE NE SE 06 32N 04W</i>	<i>SW NW NW</i>
<i>19 32N 04W</i>			
<i>Finn Br.</i>	<i>Dent Phelps</i>	<i>4.5 NE NE NE 06 35N 07W</i>	<i>SW NW SE</i>
<i>04 35N 08W</i>			
<i>Minning Haw Hollow</i>	<i>Dent</i>	<i>1.5 NE NE SW 01 32N 04W</i>	<i>NW SE NE</i>
<i>14 32N 04W</i>			
<i>Barren Fk.</i>	<i>Dent Shannon</i>	<i>9.0 SW SE NE 13 32N 04W</i>	<i>SE SE SE</i>
<i>18 31N 04W</i>			
<i>Dry Fk.</i>	<i>Dent</i>	<i>8.0 NE NE NE 24 33N 07W</i>	<i>SW NE NE</i>
<i>14 34N 07W</i>			
<i>Trib. to Dry Fk.</i>	<i>Dent</i>	<i>2.0 SW NE NW 09 33N 07W</i>	<i>SW NE NW</i>
<i>02 33N 07W</i>			
<i>Pigeon Cr.</i>	<i>Dent</i>	<i>9.0 SW NE NW 31 33N 07W</i>	<i>SE SE NE</i>
<i>22 32N 07W</i>			
<i>Rocky Pond Hollow</i>	<i>Dent</i>	<i>2.0 SW NE NE 21 34N 06W</i>	<i>SW SW SE</i>
<i>08 34N 06W</i>			
<i>Norman Cr.</i>	<i>Dent Phelps</i>	<i>15.0 NW SW NE 07 35N 05W</i>	<i>SE NW SW</i>
<i>16 37N 06W</i>			
<i>Dry Br.</i>	<i>Dent</i>	<i>3.0 NW SW SW 07 33N 03W</i>	<i>NW SW SW</i>
<i>09 33N 04W</i>			
<i>Trib. to Dry Br.</i>	<i>Dent</i>	<i>3.5 SW NE SW 18 33N 03W</i>	<i>NE NW NE</i>
<i>16 33N 04W</i>			
<i>Meramec R.</i>	<i>Dent</i>	<i>8.0 NW NW NW 34 33N 04W</i>	<i>NE SW SE</i>
<i>19 34N 04W</i>			
<i>Stone Hill Br.</i>	<i>Dent</i>	<i>4.0 NW NW NW 31 34N 03W</i>	<i>NE NE NW</i>
<i>04 33N 04W</i>			
<i>Horse Cr.</i>	<i>Dent</i>	<i>5.0 NW SE SW 32 35N 07W</i>	<i>NE NE NW</i>
<i>22 35N 08W</i>			
<i>Dry Fk.</i>	<i>Dent Phelps</i>	<i>19.0 SW SE SE 19 35N 06W</i>	<i>NE SW SW</i>
<i>13 37N 07W</i>			
<i>Big Cr.</i>	<i>Dent Reynolds</i>	<i>2.5 SE SE NE 24 32N 03W</i>	<i>SW SE SE</i>
<i>31 32N 02W</i>			
<i>L. Sinking Cr.</i>	<i>Dent</i>	<i>2.0 NE SW NE 24 32N 03W</i>	<i>SW NW NE</i>
<i>26 32N 03W</i>			
<i>Gorden Hollow</i>	<i>Dent</i>	<i>2.0 NW SE NE 13 32N 03W</i>	<i>NE SE SW</i>
<i>11 32N 03W</i>			
<i>Roney Hollow</i>	<i>Dent</i>	<i>2.0 SE SE SE 13 32N 03W</i>	<i>SW NE SW</i>
<i>14 32N 03W</i>			
<i>Prairie Cr.</i>	<i>Douglas</i>	<i>2.5 SW NW SE 16 26N 16W</i>	<i>SE SW SW</i>
<i>18 26N 16W</i>			
<i>Bryant Cr.</i>	<i>Douglas</i>	<i>8.0 SE SW NE 23 27N 15W</i>	<i>SW SW SW</i>
<i>21 26N 14W</i>			
<i>Browning Hollow</i>	<i>Douglas Ozark</i>	<i>2.5 SW NE NW 27 25</i>	<i>N 14W</i>
<i>01 24N 14W</i>			<i>NE NE SE</i>
<i>Clifty Cr.</i>	<i>Douglas</i>	<i>5.5 NW NE SE 28 27N 12W</i>	<i>SE NE SE</i>
<i>14 26N 12W</i>			
<i>Brush Cr.</i>	<i>Douglas</i>	<i>4.0 NE NW SE 21 26N 12W</i>	<i>NW NW SE</i>
<i>36 26N 13W</i>			
<i>Smith Hollow</i>	<i>Douglas Ozark</i>	<i>4.0 SE NW NE 31 25N 1</i>	<i>4W</i>
<i>02 24N 14W</i>			<i>SE NE SE</i>
<i>Spring Cr.</i>	<i>Douglas Ozark</i>	<i>12.0 NE SW SW 22 25N 15</i>	<i>W</i>
<i>05 24N 13W</i>			<i>SE SW NW</i>

<i>Trib. to Prairie Cr.</i>	<i>Douglas</i>	0.8	NE NW NE 21 26N	16W	NW SE SW
<i>16 26N 16W</i>					
<i>Dry Cr. and trib.</i>	<i>Franklin</i>	1.0	NE SW NE 08 41N 0	1W	SW NW NW
<i>05 41N 01W</i>					
<i>Dry Cr.</i>	<i>Franklin</i>	1.5	NE NE NW 05 41N 01W		SE SE SW
<i>30 42N 01W</i>					
<i>Trib. to Dry Cr.</i>	<i>Franklin</i>	3.5	SW NW NW 33 42N 01	W	SE SE SW
<i>30 42N 01W</i>					
<i>Trib. to Boone Cr.</i>	<i>Franklin</i>	2.0	NE NW NW 12 40N	03W	NW NE NW
<i>15 40N 03W</i>					
<i>Lollar Br.</i>	<i>Franklin</i>	1.0	SE SW SE 23 41N 02W		NE NE SE
<i>22 41N 02W</i>					
<i>Trib. to Bourbeuse R.</i>	<i>Franklin</i>	0.8	SW SW SW 04 4	2N 01E	NW NE NE
<i>09 42N 01E</i>					
<i>Iron Hollow</i>	<i>Franklin</i>	2.0	NE NW NW 25 41N 02W		SE NE NW
<i>31 41N 01W</i>					
<i>Trib. to Fiddle Cr.</i>	<i>Franklin</i>	1.0	NE NW NW 25 44N	02E	NW NW SW
<i>23 44N 02E</i>					
<i>Winsel Cr.</i>	<i>Franklin</i>	7.0	SW NE SW 08 40N 02W		SW SE SW
<i>18 41N 02W</i>					
<i>Pickerel Cr.</i>	<i>Greene</i>	4.0	NE NW SE 28 28N 24W		NW NW NW
<i>11 28N 24W</i>					
<i>Pickerel Cr.</i>	<i>Greene</i>	4.0	SW SW SW 02 28N 24W		NW NW NE
<i>22 29N 24W</i>					
<i>Trib. to Pickerel Cr.</i>	<i>Greene</i>	2.0	NE SE SE 29 29N	24W	NW NE NW
<i>22 29N 24W</i>					
<i>Trib. to Pearson Cr.</i>	<i>Greene</i>	0.5	SE NW NE 34 29N	21W	SE NW NE
<i>35 29N 21W</i>					
<i>Asher Cr.</i>	<i>Greene</i>	0.5	SE SE SW 14 30N 23W		NE SW NW
<i>14 30N 23W</i>					
<i>Broad Cr.</i>	<i>Greene</i>	2.0	NW NW SW 03 29N 20W		NE NE NW
<i>15 29N 20W</i>					
<i>Trib. to L. Sac R.</i>	<i>Greene</i>	0.5	NW NW SW 30 30N 22	W	NE NW NE
<i>30 30N 22W</i>					
<i>Pond Cr.</i>	<i>Greene</i>	2.0	NW SW NE 35 29N 23W		NE NE NE
<i>04 28N 23W</i>					
<i>Pond Cr.</i>	<i>Greene</i>	1.5	SE SW SW 30 29N 23W		NW SW SW
<i>24 29N 24W</i>					
<i>Davis Cr.</i>	<i>Greene</i>	0.7	NW SW NE 12 29N 20W		NE NW NE
<i>13 29N 20W</i>					
<i>Wilson Cr.</i>	<i>Greene</i>	3.5	NE NW NE 29 29N 22W		SE SW NE
<i>07 28N 22W</i>					
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	3.0	SE SE SE 03 28N 2	2W	SE NE NE
<i>07 28N 22W</i>					
<i>Sugar Cr.</i>	<i>Greene</i>	1.5	NE SW SW 26 31N 24W		SW NW SW
<i>02 30N 24W</i>					
<i>Rainer Br.</i>	<i>Greene</i>	2.0	SW 02 29N 23W		NE SE SE
<i>35 30N 23W</i>					
<i>Mt. Pleasant Br.</i>	<i>Greene</i>	2.0	NE NE NW 26 30N 23W		SW SE SE
<i>21 30N 23W</i>					
<i>S. Dry Sac R.</i>	<i>Greene</i>	6.0	NE NE 03 29N 21W		NE NE NE
<i>03 29N 22W</i>					
<i>Sac R.</i>	<i>Greene</i>	5.0	SE SW SE 22 29N 23W		NW SW SW
<i>24 29N 24W</i>					
<i>Dry Br.</i>	<i>Greene</i>	5.0	NW NW SE 18 28N 23W		NW SE SW
<i>26 29N 24W</i>					
<i>Trib. to Turkey Cr.</i>	<i>Greene Polk</i>	0.2	NW NE NE 15 3	IN 24W	SW NE SE
<i>10 31N 24W</i>					
<i>Trib. to Sac R.</i>	<i>Greene</i>	2.0	SW 02 29N 24W		SW NW SE
<i>09 29N 24W</i>					
<i>Shuyler Cr.</i>	<i>Greene</i>	2.5	NW NE NW 27 28N 23W		SW NE SW
<i>26 28N 23W</i>					

<i>Shuyler Cr.</i> 28 28N 23W	Greene	1.0 SE SE SE 19 28N 23W	NW SE NW
<i>Trib. to Shuyler Cr.</i> 22 28N 23W	Greene	1.0 NE NE NE 21 28N	23W SW SW SE
<i>Trib. to Shuyler Cr.</i> 22 28N 23W	Greene	1.0 NW NW SW 16 28N	23W NW NE SW
<i>Trib. to Shuyler Cr.</i> 22 28N 23W	Greene	0.5 NE NE NW 22 28N	23W SE NE SW
<i>McElhaney Br.</i> 23 28N 23W	Greene	2.0 SE SW NW 11 28N 23W	SE NE SE
<i>Trib. to Wilson Cr.</i> 13 28N 23W	Greene	1.0 SE NW SW 12 28N 2	3W NW SE NE
<i>Trib. to Wilson Cr.</i> 25 28N 23W	Greene	1.0 SE SW SW 30 28N 22	W SE SW SW
<i>Trib. to Hunt Br.</i> 22 28N 21W	Greene	0.5 NW NW NW 23 28N 21W	SW SE NE
<i>Trib. to Hunt Br.</i> 24 28N 21W	Greene	0.5 NW SW SE 13 28N 21W	NW SE NW
<i>Trib. to Hunt Br.</i> 24 28N 21W	Greene	0.5 NW SW SE 24 28N 21W	NW NW SW
<i>Trib. to Hunt Br.</i> 25 28N 21W	Greene	1.5 SW NE NW 30 28N 20W	SW SW NW
<i>Trib. to Hunt Br.</i> 25 28N 21W	Greene	1.5 SE NW SE 30 28N 20W	NW SE SW
<i>Unnamed perched stream</i> 18 28N 20W	Greene	0.5 NW NW NE 19 28	N 20W NE NW SE
<i>Parched Corn Hollow</i> 08 27N 20W	Greene	3.0 NE SE SW 27 28N 2	0W NW NW SW
<i>Pearson Cr.</i> 26 29N 21W	Greene	1.0 SE NW SW 23 29N 21W	SE SE NW
<i>Trib. to Pearson Cr.</i> 26 29N 21W	Greene	1.0 NW SE NW 24 29N	21W NE NE NW
<i>Trib. to Pearson Cr.</i> 23 29N 21W	Greene	0.5 NW SE NE 23 29N	21W SE SW NW
<i>Trib. to Pearson Cr.</i> 05 29N 20W	Greene	1.0 SE NW NW 04 29N	20W NE SE SW
<i>Trib. to Pearson Cr.</i> 05 29N 20W	Greene	0.2 NE NW NE 05 29N	20W SW SE NW
<i>Trib. to Pearson Cr.</i> 05 29N 20W	Greene	0.2 NE NE SW 05 29N	20W SE SW SW
<i>Trib. to Pearson Cr.</i> 05 29N 20W	Greene	0.5 NW NW NW 05 29N	20W NE NW SW
<i>Trib. to Pearson Cr.</i> 09 29N 20W	Greene	1.0 NE SE NE 07 29N	20W SW SW NW
<i>Trib. to Pearson Cr.</i> 08 29N 20W	Greene	0.5 NW SE SE 08 29N	20W SE SE NW
<i>Trib. to Pearson Cr.</i> 08 29N 20W	Greene	0.5 SE SE SW 08 29N	20W NW SW NW
<i>Trib. to Pearson Cr.</i> 07 29N 20W	Greene	1.5 SW NW SE 01 29N	21W SW SW NE
<i>Trib. to Pearson Cr.</i> 12 29N 21W	Greene	0.5 NE SE NE 12 29N	21W SE SW SE
<i>Trib. to Pearson Cr.</i> 13 29N 21W	Greene	1.0 NW NW NW 12 29N	NW NW NE
<i>Trib. to Pearson Cr.</i> 14 29N 21W	Greene	2.5 NW SE SE 02 29N	21W SE SE SW
<i>Trib. to Pearson Cr.</i> 15 29N 21W	Greene	0.5 SE NW SE 10 29N	21W NE NE NE
<i>Trib. to Pearson Cr.</i> 14 29N 21W	Greene	0.5 SE NE NW 15 29N	21W NW NW NW
<i>Trib. to Pearson Cr.</i> 22 29N 21W	Greene	1.0 NW NE SW 15 29N	21W NE NE NE

<i>Trib. to Pearson Cr.</i>	<i>Greene</i>	<i>1.0 NE SW SW 15 29N</i>	<i>21W</i>	<i>NW SW NW</i>
<i>23 29N 21W</i>				
<i>Turner Cr.</i>	<i>Greene</i>	<i>4.0 SE NE NE 14 28N 20W</i>		<i>NE SE NW</i>
<i>33 29N 20W</i>				
<i>Trib. to Turner Cr.</i>	<i>Greene</i>	<i>1.0 SW SW NE 04 28N 2</i>	<i>0W</i>	<i>SW SE NW</i>
<i>33 29N 20W</i>				
<i>Trib. to Turner Cr.</i>	<i>Greene</i>	<i>1.0 NE NW NW 07 28N 2</i>	<i>0W</i>	<i>NW SW NW</i>
<i>01 28N 21W</i>				
<i>Big Hollow</i>	<i>Greene</i>	<i>0.5 SW NE NW 12 28N 21W</i>		<i>SW NW SW</i>
<i>12 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>5.0 SW SE SW 10 28N 20W</i>		<i>SW NE SW</i>
<i>11 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NE NE SW 15 28N 20W</i>		<i>NW NE NE</i>
<i>16 28N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 NE SW NE 19 29N 20W</i>		<i>NW SE SW</i>
<i>20 29N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>2.0 NE SW NW 04 28N 20W</i>		<i>SE NE SE</i>
<i>31 29N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 NE NE NW 08 28N 20W</i>		<i>NW SE SE</i>
<i>31 29N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 SW NE SE 20 28N 20W</i>		<i>NE NE SW</i>
<i>17 28N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.7 NE SW NE 21 28N 22W</i>		<i>SE NE NW</i>
<i>27 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 NW NE SW 20 28N 22W</i>		<i>NE SE SE</i>
<i>29 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 NE NW NW 13 28N 21W</i>		<i>SW NW SW</i>
<i>11 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NW NE NE 17 28N 20W</i>		<i>NW NE SW</i>
<i>16 28N 20W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 SE SW SE 09 28N 21W</i>		<i>NE NE SE</i>
<i>16 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NW SW NW 10 28N 21W</i>		<i>NW SW SE</i>
<i>10 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.0 NW NW SW 03 28N 21W</i>	<i>S</i>	<i>E SW NE 10</i>
<i>28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 SW SW SE 03 28N 21W</i>		<i>SE SW NE</i>
<i>10 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.5 SW NE NW 03 28N 21W</i>		<i>NE NE NE</i>
<i>10 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.5 SE SW SW 28 29N 21W</i>		<i>SE NE NW</i>
<i>09 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NW SE NE 04 28N 21W</i>		<i>NW NE SW</i>
<i>04 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NE NW NE 05 28N 21W</i>		<i>NE SW NW</i>
<i>04 28N 21W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.5 SW SE SW 16 28N 22W</i>		<i>NW NE SW</i>
<i>28 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>1.5 SE NW SE 17 28N 22W</i>		<i>NW SW SW</i>
<i>21 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NE SW SW 20 28N 22W</i>		<i>SE NE NW</i>
<i>29 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 SE SE NW 29 28N 22W</i>		<i>NE NE SE</i>
<i>29 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.5 NW NE SW 29 28N 22W</i>		<i>NE NE SE</i>
<i>29 28N 22W</i>				
<i>Trib. to James R.</i>	<i>Greene</i>	<i>0.2 NW SE SW 24 28N 22W</i>		<i>SW NE NW</i>
<i>25 28N 22W</i>				
<i>Trib. to Jones Br.</i>	<i>Greene</i>	<i>0.5 NW NW NW 27 29N 21</i>	<i>W</i>	<i>SW NW NE</i>
<i>27 29N 21W</i>				
<i>Trib. to Jones Br.</i>	<i>Greene</i>	<i>0.5 SW NE SW 22 29N 21</i>	<i>W</i>	<i>SW SW NE</i>
<i>27 29N 21W</i>				

<i>Ward Br.</i>	<i>Greene</i>	2.0 SE NW NW 08 28N 21W	NW SW SW
13 28N 22W			
<i>Ward Br.</i>	<i>Greene</i>	2.0 SW NE SW 23 28N 22W	SE NW NW
27 28N 22W			
<i>Trib. to Ward Br.</i>	<i>Greene</i>	0.5 SE NW NE 12 28N 22W	NW SE SE
12 28N 22W			
<i>Trib. to Ward Br.</i>	<i>Greene</i>	1.5 NW NE NW 12 28N 22W	NW SW SW
13 28N 22W			
<i>Trib. to Ward Br.</i>	<i>Greene</i>	1.5 NE NE NW 16 28N 22W	NE SE SW
22 28N 22W			
<i>Workman Br.</i>	<i>Greene</i>	0.5 SW NE SW 11 28N 22W	SW SW NW
14 28N 22W			
<i>Trib. to Workman Br.</i>	<i>Greene</i>	1.0 NW NE SE 10 28N 22W	NE NE SE
15 28N 22W			
<i>South Cr.</i>	<i>Greene</i>	2.5 NW SE 31 29N 21W	NE NE NE
03 28N 22W			
<i>Jordan Cr.</i>	<i>Greene</i>	2.0 NW SE NW 17 29N 21W	NW NE NW
24 29N 22W			
<i>Trib. to Jordan Cr.</i>	<i>Greene</i>	2.0 NW SW SE 08 29N 21W	NW NE NW
24 29N 22W			
<i>Fassnight Cr.</i>	<i>Greene</i>	2.0 NW SE 30 29N 21W	NE SE NE
26 29N 22W			
<i>Wilson Cr.</i>	<i>Greene</i>	2.5 NE SE SW 09 29N 22W	NW SE SE
20 29N 22W			
<i>Wilson Cr.</i>	<i>Greene</i>	1.0 SW SE NE 07 28N 22W	SE NE NW
18 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.5 SW NE SW 15 29N 21W	SE NW SW
21 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.5 SW NW SE 18 29N 21W	NW NE NE
20 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.0 SE NW NW 17 29N 21W	NE NE NW
20 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.5 NE NW NE 19 29N 21W	NE NW NW
20 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.5 NW NW SW 20 29N 21W	NE NE NW
29 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.5 SW SW NE 30 29N 21W	NW SW SW
29 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.0 SW SW SW 28 29N 21W	SW NW SW
29 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.5 NE SW NE 32 29N 21W	NE NE SE
31 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.5 SE NW NW 10 28N 21W	SE SW SW
03 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.5 SW SE NE 17 28N 21W	NW NW NE
17 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	2.0 SW SW SE 09 28N 21W	NE NW SE
07 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.0 NW SW SE 17 28N 21W	NE NW NE
18 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.0 SE NE NE 01 28N 21W	SW NW SE
06 28N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.0 NE NW SE 36 29N 21W	SE SW SE
31 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.5 NE SW SE 13 29N 21W	NW NW NW
30 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	0.3 SW NE SW 19 29N 21W	NE NW NW
30 29N 22W			
<i>Trib. to Wilson Cr.</i>	<i>Greene</i>	1.9 NE NE NE 20 29N 21W	SW SW SW
21 29N 22W			
<i>Mooney Hollow</i>	<i>Greene Christian</i>	3.5 SW SW NE 26 21W	SE NW NW
04 27N 20W			

<i>Drainage to sinkhole</i>	<i>Greene</i>	1.0	<i>NW NE NE 27 28N</i>	<i>20W</i>	<i>NW SW NW</i>
<i>27 28N 20W</i>					
<i>Drainage to sinkhole</i>	<i>Greene</i>	2.0	<i>SW NW SE 23 28N</i>	<i>20W</i>	<i>SE NW SW</i>
<i>22 28N 20W</i>					
<i>Sawyer Cr.</i>	<i>Greene</i>	1.0	<i>SE SE SE 01 28N 20W</i>		<i>NE SW SE</i>
<i>36 29N 20W</i>					
<i>Trib. to Broad Cr.</i>	<i>Greene</i>	1.0	<i>SW 02 29N 20W</i>		<i>SW NW SE</i>
<i>10 29N 20W</i>					
<i>Trib. to Broad Cr.</i>	<i>Greene</i>	0.5	<i>NW SW NW 11 29N 20</i>	<i>W</i>	<i>SW NW SE</i>
<i>10 29N 20W</i>					
<i>Trib. to Broad Cr.</i>	<i>Greene</i>	0.5	<i>NE NE NE 09 29N 20</i>	<i>W</i>	<i>SW SW NW</i>
<i>10 29N 20W</i>					
<i>Davis Cr.</i>	<i>Greene</i>	0.5	<i>NE 02 29N 20W</i>		<i>SE 02 29N</i>
<i>20W</i>					
<i>Hunt Br. and Farmer Br.</i>	<i>Greene</i>	5.0	<i>NE NE SE 23 2</i>	<i>8N 21W</i>	<i>SW SE 30</i>
<i>28N 21W</i>					
<i>Trib. to Farmer Br.</i>	<i>Greene</i>	1.0	<i>NW NW SE 26 28N 2</i>	<i>1W</i>	<i>NW SW SE</i>
<i>27 28N 21W</i>					
<i>Spring Cr. and trib.</i>	<i>Greene</i>	2.0	<i>NW SW NE 17 30N</i>	<i>20W</i>	<i>SW NW SE</i>
<i>05 30N 20W</i>					
<i>Trib. to Little Cr.</i>	<i>Howell</i>	2.0	<i>NW NE 04 25N 08W</i>		<i>SW NE NE</i>
<i>10 25N 08W</i>					
<i>Horton Hollow</i>	<i>Howell</i>	2.0	<i>NW SW NE 05 25N 10W</i>		<i>SW NE SW</i>
<i>18 25N 10W</i>					
<i>Moss Hollow</i>	<i>Howell</i>	4.0	<i>NE SE NW 34 26N 10W</i>		<i>SW SE SE</i>
<i>18 25N 10W</i>					
<i>Lee Hollow</i>	<i>Howell</i>	6.0	<i>SW SE NW 35 27N 07W</i>		<i>NW SW NW</i>
<i>34 26N 07W</i>					
<i>Kenaga Hollow</i>	<i>Howell</i>	8.0	<i>NE SE NW 28 27N 07W</i>		<i>SE NW NE</i>
<i>33 26N 07W</i>					
<i>Middle Fk.</i>	<i>Howell Oregon</i>	10.0	<i>NW NW SW 35 25N 07W</i>		<i>NW NW NE</i>
<i>05 24N 05W</i>					
<i>Jam Up Cr.</i>	<i>Howell Shannon</i>	5.0	<i>SW NE SE 22 27N 07</i>	<i>W</i>	<i>NW SE SE</i>
<i>04 27N 06W</i>					
<i>Crooked Br.</i>	<i>Howell Ozark</i>	5.0	<i>NW SW SE 21 24N 10W</i>		<i>SE NW SE</i>
<i>22 24N 11W</i>					
<i>Spring Cr.</i>	<i>Howell Ozark</i>	10.5	<i>NW NW NW 06 23N 09W</i>		<i>SW SW SW</i>
<i>15 23N 11W</i>					
<i>Tabor Cr.</i>	<i>Howell</i>	5.0	<i>NW SE SW 19 24N 09W</i>		<i>SE SW SW</i>
<i>34 24N 10W</i>					
<i>Tabor Cr.</i>	<i>Howell Douglas</i>	10.0	<i>SE NE NW 34 25N 09W</i>		<i>SE NE SW</i>
<i>35 25N 11W</i>					
<i>Trib. to Tabor Cr.</i>	<i>Howell</i>	2.0	<i>NW SE NE 35 25N 10</i>	<i>W</i>	<i>NE NW SW</i>
<i>11 24N 10W</i>					
<i>Davis Cr.</i>	<i>Howell</i>	2.0	<i>NE NE SW 19 23N 09W</i>		<i>NE NW SW</i>
<i>14 23N 10W</i>					
<i>Kenyon</i>	<i>Hollow Howell</i>	2.5	<i>SW SE NW 02 25N 10W</i>		<i>NE NE NE</i>
<i>21 25N 10W</i>					
<i>Elk Cr.</i>	<i>Howell Oregon</i>	4.0	<i>SW SE SE 24 24N 07W</i>		<i>SE NE NW</i>
<i>08 23N 06W</i>					
<i>Big Greasy Cr.</i>	<i>Howell</i>	3.0	<i>SW NE SW 28 24N 07W</i>		<i>NW NW NW</i>
<i>02 23N 07W</i>					
<i>Spring Cr.</i>	<i>Howell</i>	5.0	<i>NW 23 24N 09W</i>		<i>NW NW NW</i>
<i>06 23N 09W</i>					
<i>Trib. to Spring Cr.</i>	<i>Howell</i>	4.0	<i>SW SE NW 02 23N 0</i>	<i>9W</i>	<i>SW NW SW</i>
<i>32 24N 09W</i>					
<i>Mustion Cr.</i>	<i>Howell</i>	3.5	<i>NE NE SE 32 24N 08W</i>		<i>SW NW SE</i>
<i>36 24N 08W</i>					
<i>Mustion Cr.</i>	<i>Howell</i>	2.0	<i>NW NE SE 36 24N 09W</i>		<i>NW SE NE</i>
<i>32 24N 08W</i>					
<i>Chapin Br.</i>	<i>Howell</i>	3.0	<i>SW NW NW 14 23N 08W</i>		<i>NE NW SE</i>
<i>06 23N 07W</i>					

<i>L. Greasy Cr.</i>	<i>Howell</i>	<i>5.0 SE NE 13 24N 08W</i>	<i>NW SW SE</i>
<i>05 23N 07W</i>			
<i>Bay Cr.</i>	<i>Howell</i>	<i>2.5 NE SW NE 32 22N 09W</i>	<i>SE SW NW</i>
<i>10 21N 09W</i>			
<i>Myatt Cr.</i>	<i>Howell</i>	<i>13.0 SW SE NW 14 23N 08W</i>	<i>SE SE NW</i>
<i>33 22N 07W</i>			
<i>Bennetts R.</i>	<i>Howell</i>	<i>6.0 NE SW 01 22N 10W</i>	<i>NE NW NE</i>
<i>02 21N 10W</i>			
<i>Ray Br.</i>	<i>Howell</i>	<i>2.5 NE SW SW 32 22N 09W</i>	<i>SE SW NE</i>
<i>02 21N 10W</i>			
<i>N. Fk. Dry Cr.</i>	<i>Howell</i>	<i>3.5 NE NE NE 30 26N 09W</i>	<i>NW NW NW</i>
<i>18 25N 09W</i>			
<i>Dry Cr.</i>	<i>Howell</i>	<i>6.0 NW NE SE 20 26N 09W</i>	<i>NW NW NW</i>
<i>18 25N 09W</i>			
<i>Lost Camp Cr.</i>	<i>Howell</i>	<i>12.0 SW SW SE 08 26N 09W</i>	<i>SE NW SE</i>
<i>24 26N 08W</i>			
<i>Trib. to Lost Camp Cr.</i>	<i>Howell</i>	<i>6.0 NW NE NW 28 26 N 09W</i>	<i>NE NW SE</i>
<i>20 26N 08W</i>			
<i>Eleven Point R.</i>	<i>Howell Oregon</i>	<i>32.0 NW SE SW 29 27 N 09W</i>	<i>SW SE SE</i>
<i>31 25N 05W</i>			
<i>Trib. to Eleven Point R.</i>	<i>Howell</i>	<i>2.5 SE SW SW 36 27N 08W</i>	<i>SE NW NW</i>
<i>13 26N 08W</i>			
<i>Gunters Valley</i>	<i>Howell</i>	<i>8.0 SW SW NW 03 24N 08W</i>	<i>NE NE SE</i>
<i>34 25N 07W</i>			
<i>Little Cr.</i>	<i>Howell</i>	<i>9.0 NW SW SW 16 25N 08W</i>	<i>SE NW SW</i>
<i>02 25N 07W</i>			
<i>Dry Cr.</i>	<i>Howell Douglas</i>	<i>8.0 NW NW NW 18 25N 09W</i>	<i>SW SE SW</i>
<i>23 25N 11W</i>			
<i>Trib. to Dry Cr.</i>	<i>Howell</i>	<i>7.0 NW NE SW 14 25N 09W</i>	<i>SW NE NW</i>
<i>23 25N 10W</i>			
<i>Howell Cr.</i>	<i>Howell</i>	<i>16.0 NE SW NW 35 25N 09W</i>	<i>NE NE NE</i>
<i>12 23N 07W</i>			
<i>Spradlin Cr.</i>	<i>Howell</i>	<i>3.0 NE NW NW 10 24N 08W</i>	<i>SE NE SW</i>
<i>26 24N 08W</i>			
<i>Galloway Cr. and trib.</i>	<i>Howell</i>	<i>0.5 SW SW 04 24N 0 8W</i>	<i>SW NE 08</i>
<i>24N 08W</i>			
<i>Trib. to Lost Camp Cr.</i>	<i>Howell</i>	<i>12.8 SW SW SE 27 26 N 09W</i>	<i>SE SW SW</i>
<i>19 26N 07W</i>			
<i>Trib. to Blue Br.</i>	<i>Jackson</i>	<i>0.2 SE SE SW 28 49N 30 W</i>	<i>SE SE SW</i>
<i>28 49N 30W</i>			
<i>Short Cr.</i>	<i>Jasper</i>	<i>1.5 NE NW NE 12 27N 34W</i>	<i>NE NE SW</i>
<i>02 27N 34W</i>			
<i>Spring Br.</i>	<i>Jasper</i>	<i>3.0 NE NE SW 18 27N 33W</i>	<i>SE SE SW</i>
<i>02 27N 34W</i>			
<i>Fidelity Br.</i>	<i>Jasper</i>	<i>1.5 NW SE SW 15 27N 31W</i>	<i>NE NW NE</i>
<i>03 27N 31W</i>			
<i>Fidelity Br.</i>	<i>Jasper</i>	<i>2.5 NW SE NW 22 27N 31W</i>	<i>SE NE NE</i>
<i>09 27N 31W</i>			
<i>Grove Cr.</i>	<i>Jasper</i>	<i>1.0 SW SW NE 11 27N 32W</i>	<i>NW SE NW</i>
<i>01 27N 32W</i>			
<i>Trib. to Jenkins Cr.</i>	<i>Jasper</i>	<i>1.0 SW SW SW 05 27N 30W</i>	<i>NW SE SE</i>
<i>07 27N 30W</i>			
<i>Trib. to Center Cr.</i>	<i>Jasper</i>	<i>2.0 SE NW SW 09 27N 3 1W</i>	<i>NE NW SW</i>
<i>33 28N 31W</i>			
<i>Trib. to Center Cr.</i>	<i>Jasper</i>	<i>2.5 SE SW NW 23 28N 3 3W</i>	<i>SW SW NE</i>
<i>09 28N 33W</i>			
<i>Buck Cr.</i>	<i>Jefferson</i>	<i>1.5 SE NE SE 27 40N 05E</i>	<i>NE NE NW</i>
<i>23 40N 05E</i>			
<i>Williams Cr.</i>	<i>Jefferson St. Louis</i>	<i>3.0 NW NE 14 43 N 04E</i>	<i>NE NE NE</i>
<i>36 44N 04E</i>			
<i>L. Antire Cr.</i>	<i>Jefferson</i>	<i>1.0 NW NE NW 14 43N 04E</i>	<i>SE SW NW</i>
<i>11 43N 04E</i>			

Glaize Cr. 23 42N 05E	Jefferson	5.0 NE NW SW 32 42N 05E	NW SW NW
Bear Cr. 34 43N 04E	Jefferson	2.0 SE SE SW 25 43N 04E	NW SE SW
Rock Cr. 33 43N 05E	Jefferson	1.2 NE NW NW 32 43N 05E	NW NW NE
Romaine Cr. 16 43N 05E	Jefferson	2.0 SE NW NE 29 43N 05E	SE NE SE
Heads Cr. 03 42N 04E	Jefferson	5.0 SW SW NE 36 42N 04E	NW NW SW
Trib. to Heads Cr. 03 42N 04E	Jefferson	1.0 NE NW SW 02 42N 04E	NE SE SW
Trib. to Heads Cr. 18 42N 05E	Jefferson	0.5 SE SE SW 18 42N 05E	NE NW SW
Trib. to Heads Cr. 04 42N 04E	Jefferson	1.5 SW SW 35 43N 04 E	NE NE NE
McMullen Br. 21 39N 05E	Jefferson	1.5 SE 28 39N 05E	NW NW SE
Murril Br. 15 40N 04E	Jefferson	0.5 NE NE SW 15 40N 04E	SE SW SE
Moss Hollow 05E	Jefferson	2.0 SW NW NE 05 41N 05E	SE 34 42N
Trib. to Moss Hollow 33 42N 05E	Jefferson	0.5 NE SE NW 33 4 2N 05E	SE NW SE
Trib. to Moss Hollow 05E	Jefferson	1.0 SE NE NE 04 4 1N 05E	SE 34 42N
Trib. to Moss Hollow 05E	Jefferson	0.5 SW NE NE 03 4 1N 05E	SE 34 42N
Trib. to Sandy Cr. 05E	Jefferson	1.0 NE 08 41N 05E	NE 09 41N
Trib. to Sandy Cr. 04 41N 05E	Jefferson	1.0 NE SE SW 05 41N 05E	NW SE SW
Trib. to Sandy Cr. 05 41N 05E	Jefferson	0.5 NW NW SE 05 41N 05E	SE NE SE
Trib. to Sandy Cr. 05E	Jefferson	1.0 NW 09 41N 05E	NW 10 41N
Trib. to Mississippi R. 07 41N 06E	Jefferson	1.5 SW NE NE 1 1 41N 05E	NE NW NW
Trib. to Mississippi R. 07 41N 06E	Jefferson	0.5 NE 12 41N 05E	SE NE SW
Williams Cr 24 44N 04E	Jefferson St. Louis	3.5 SE NE NE 11 43N 04E	SW SE SE
Prairie Hollow 13 42N 05E	Jefferson	2.5 SE SE SE 34 43N 05E	NW NE NE
Dulin Cr. 04 42N 04E	Jefferson	1.0 NE NW SW 09 42N 04E	SW NW SW
Bourne Cr. 04 42N 04E	Jefferson	2.0 NE NW SW 15 42N 04E	NE SE NE
Trib. to Meramec R. 22 43N 05E	Jefferson	1.0 NE NW NW 27 43 N 05E	SE SE NE
Trib. to Hocum Hollow 06E	Jefferson	1.5 SW NW NW 33 40N 06E	NE 31 40N
Isum Cr. 30 42N 04E	Jefferson	1.0 SW NE 29 42N 04E	SE SW NE
Scullbones Cr. 26 42N 03E	Jefferson	1.0 NE NE SW 35 42N 03E	SE SW SE
Glaize Cr. 23 42N 05E	Jefferson	2.5 SW NW NW 28 42N 05E	NW SW NW
Trib. to Glaize Cr. 20 42N 05E	Jefferson	1.5 NW SE NW 29 42 N 05E	NE NW NE
Trib. to Glaize Cr. 05E	Jefferson	1.5 SE NE SE 18 42 N 05E	NW 21 42N

<i>Trib. to Glaize Cr.</i>	<i>Jefferson</i>	0.2	<i>SE SW SW 17 42</i>	<i>N 05E</i>	<i>SE SE SW</i>
<i>17 42N 05E</i>					
<i>Trib. to Glaize Cr.</i>	<i>Jefferson</i>	0.5	<i>NE NW NW 20 42</i>	<i>N 05E</i>	<i>NW NW NE</i>
<i>20 42N 05E</i>					
<i>Trib. to Glaize Cr.</i>	<i>Jefferson</i>	0.5	<i>NE NE NE 30 42</i>	<i>N 05E</i>	<i>SW NE SW</i>
<i>20 42N 05E</i>					
<i>Trib. to Glaize Cr.</i>	<i>Jefferson</i>	1.5	<i>SW NE NE 16 42</i>	<i>N 05E</i>	<i>NW SE NW</i>
<i>23 42N 05E</i>					
<i>Trib. to Black Cr.</i>	<i>Jefferson</i>	0.5	<i>NE SW 07 42N 06</i>	<i>E</i>	<i>NE SE 07</i>
<i>42N 06E</i>					
<i>Hocum Hollow</i>	<i>Jefferson</i>	1.0	<i>SE SE SE 04 39N 06E</i>		<i>NW SE NW</i>
<i>04 39N 06E</i>					
<i>L. Antire Cr.</i>	<i>Jefferson</i>	3.0	<i>NW NE NW 14 43N 04E</i>		<i>NW SW SE</i>
<i>34 44N 04E</i>					
<i>Trib. to Meramec R.</i>	<i>Jefferson</i>	0.5	<i>SE NE SW 22 43</i>	<i>N 05E</i>	<i>SE SE NE</i>
<i>22 43N 05E</i>					
<i>Haverstick Cr.</i>	<i>Jefferson</i>	1.0	<i>NW SE 05 39N 05E</i>		<i>NW NE NE</i>
<i>05 39N 05E</i>					
<i>Antire Cr.</i>	<i>Jefferson</i>	2.0	<i>NW NW NW 23 43N 04E</i>		<i>NE NW SW</i>
<i>10 43N 04E</i>					
<i>N. Cobb Cr.</i>	<i>Laclede</i>	6.0	<i>SE 18 34N 15W</i>		<i>SE SW NE</i>
<i>02 33N 15W</i>					
<i>Bennett Spring Cr.</i>	<i>Laclede Dallas</i>	10.8	<i>NE NE NE 3 4 34N 17W</i>		<i>SE NE NE</i>
<i>01 34N 18W</i>					
<i>Woodward Hollow</i>	<i>Laclede</i>	6.8	<i>SW SE NW 11 34N 17W</i>		<i>NW SW NW</i>
<i>06 34N 17W</i>					
<i>Dousinbury Cr.</i>	<i>Laclede Dallas</i>	3.1	<i>SE SW SE 08 33</i>	<i>N 17W</i>	<i>SW NW SE</i>
<i>12 33N 18W</i>					
<i>Trib. to Dousinbury Cr.</i>	<i>Laclede Dallas</i>	2.0	<i>NE SE NE 18 33N 17W</i>		<i>SW NW SE</i>
<i>12 33N 18W</i>					
<i>Pig Pen Hollow</i>	<i>Laclede</i>	1.0	<i>NE SW SE 04 34N 15W</i>		<i>SW SW SW</i>
<i>03 34N 15W</i>					
<i>Trib. to N. Cobb Cr.</i>	<i>Laclede</i>	2.5	<i>NW NW NE 26 34N</i>	<i>16W</i>	<i>NE SW SW</i>
<i>20 34N 15W</i>					
<i>Mountain Cr.</i>	<i>Laclede</i>	7.6	<i>NE NE NW 31 35N 16W</i>		<i>SW SE SW</i>
<i>04 35N 17W</i>					
<i>Mill Cr.</i>	<i>Laclede</i>	3.0	<i>SW SW SW 09 34N 15W</i>		<i>SW NW SE</i>
<i>02 34N 15W</i>					
<i>Dog Wood Cr. and trib.</i>	<i>Laclede</i>	2.5	<i>NW NW SE 33 3</i>	<i>4N 17W</i>	<i>NE NW NW</i>
<i>21 34N 17W</i>					
<i>Bear Cr.</i>	<i>Laclede</i>	1.5	<i>NE SW NW 08 35N 14W</i>		<i>NE NW NW</i>
<i>04 35N 14W</i>					
<i>Gasconade R.</i>	<i>Laclede Pulaski</i>	26.0	<i>NW NW NE 11 35N</i>	<i>14W</i>	<i>SE SE NE</i>
<i>15 36N 12W</i>					
<i>Steins Cr.</i>	<i>Laclede</i>	2.0	<i>SW NW NW 02 32N 15W</i>		<i>SE NE SW</i>
<i>25 33N 15W</i>					
<i>Osage Fork</i>	<i>Laclede</i>	6.0	<i>NE NW SW 07 32N 15W</i>		<i>NE NW NW</i>
<i>33 33N 15W</i>					
<i>Woolsey Cr.</i>	<i>Laclede Camden</i>	10.0	<i>SW SE SE 24 36N 1</i>	<i>7W</i>	<i>SW NE NE</i>
<i>36 37N 18W</i>					
<i>Goodwin Hollow</i>	<i>Laclede</i>	20.0	<i>SW SW SW 16 34N 16W</i>		<i>NE NE SW</i>
<i>14 36N 16W</i>					
<i>Dry Auglaize Cr.</i>	<i>Laclede Camden</i>	25.0	<i>SE SE SE 02 34N 16W</i>		<i>NE NE NE</i>
<i>13 38N 16W</i>					
<i>Trib. to Woodward Hollow</i>	<i>Laclede</i>	3.8	<i>SE SE 01 34</i>	<i>N 17W</i>	<i>SE NW SE</i>
<i>04 34N 17W</i>					
<i>Mill Cr.</i>	<i>Laclede</i>	2.5	<i>NW NW NW 10 34N 15W</i>		<i>01 34N 15W</i>
<i>Trib. to Spring R.</i>	<i>Lawrence</i>	0.5	<i>SE SE SE 05 26N</i>	<i>26W</i>	<i>NE SE SW</i>
<i>05 26N 26W</i>					
<i>Trib. to Clear Cr.</i>	<i>Lawrence Barry</i>	3.0	<i>SE NW SE 2 0 26N 27W</i>		<i>NW SE NE</i>
<i>35 26N 28W</i>					

<i>Pruitt Br.</i>	<i>Lawrence</i>	2.5	<i>NW NW SW 11 26N 28W</i>	<i>SW NE SW</i>
<i>26 27N 28W</i>				
<i>Hewlett Br.</i>	<i>Lawrence</i>	4.0	<i>SW NW SE 18 26N 27W</i>	<i>SW SW SW</i>
<i>25 27N 28W</i>				
<i>Browning Hollow</i>	<i>Lawrence</i>	4.0	<i>SE SW SE 34 27N 26W</i>	<i>SW SW NW</i>
<i>30 27N 26W</i>				
<i>Honey Cr.</i>	<i>Lawrence</i>	9.0	<i>NE NE SE 13 27N 26W</i>	<i>SW NE SW</i>
<i>02 27N 27W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	2.0	<i>NW NE SW 03 27N</i>	<i>26W SW SE SW</i>
<i>16 27N 26W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	1.0	<i>NW NW NE 33 27N</i>	<i>25W SE NW NE</i>
<i>27 27N 25W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	1.5	<i>NW NE NE 12 27N</i>	<i>26W NE NW SE</i>
<i>13 27N 26W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	2.0	<i>NW NE SW 05 27N</i>	<i>25W NE NE SE</i>
<i>13 27N 26W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	1.0	<i>NW SW NW 09 27N</i>	<i>25W SE SW NE</i>
<i>17 27N 25W</i>				
<i>Trib. to Honey Cr.</i>	<i>Lawrence</i>	1.5	<i>SW NE SW 09 27N</i>	<i>25W NE NW SE</i>
<i>17 27N 25W</i>				
<i>Dry Hollow</i>	<i>Lawrence</i>	8.0	<i>SW SE NW 24 27N 28W</i>	<i>NE SE SW</i>
<i>15 28N 28W</i>				
<i>Trib. to Spring R.</i>	<i>Lawrence</i>	6.0	<i>NE SE SE 29 27N</i>	<i>NW SE SE</i>
<i>29 28N 27W</i>				
<i>Trib. to Spring R.</i>	<i>Lawrence</i>	2.0	<i>SW SW SW 18 26N</i>	<i>26W NE NE NW</i>
<i>08 26N 26W</i>				
<i>Hillhouse Br.</i>	<i>Lawrence</i>	3.0	<i>NE NE NE 15 26N 27W</i>	<i>NW NE NE</i>
<i>01 26N 27W</i>				
<i>Douger Br.</i>	<i>Lawrence</i>	2.0	<i>NW NE SW 11 26N 26W</i>	<i>SW NW SW</i>
<i>09 26N 26W</i>				
<i>Goose Cr.</i>	<i>Lawrence</i>	3.0	<i>NW NE NW 11 27N 25W</i>	<i>NE SW NW</i>
<i>26 28N 25W</i>				
<i>Trib. to Goose Cr.</i>	<i>Lawrence</i>	2.0	<i>SW NW SE 02 27N</i>	<i>25W NE SW NW</i>
<i>26 28N 25W</i>				
<i>Trib. to Stahl Cr.</i>	<i>Lawrence</i>	0.8	<i>SE SW SW 24 29N</i>	<i>27W SE SW NW</i>
<i>25 29N 27W</i>				
<i>Hickory Hollow</i>	<i>Lawrence</i>	2.0	<i>SW SE SW 29 26N 25W</i>	<i>NE SW NW</i>
<i>22 26N 25W</i>				
<i>Hemphill Br.</i>	<i>Lawrence</i>	2.0	<i>NW SE NW 09 26N 25W</i>	<i>SW NW NW</i>
<i>22 26N 25W</i>				
<i>Hemphill Br.</i>	<i>Lawrence</i>	2.0	<i>NE SE SW 22 26N 25W</i>	<i>SW SW NE</i>
<i>24 26N 25W</i>				
<i>Hemphill Br.</i>	<i>Lawrence</i>	0.5	<i>NE SW SE 09 26N 25W</i>	<i>NE NE NW</i>
<i>16 26N 25W</i>				
<i>Trib. to Hemphill Br.</i>	<i>Lawrence</i>	2.0	<i>NW NW SE 11 2</i>	<i>6N 25W NE SW NE</i>
<i>23 26N 25W</i>				
<i>Trib. to Hemphill Br.</i>	<i>Lawrence</i>	1.0	<i>SE NE NW 17 2</i>	<i>6N 25W NW SW SE</i>
<i>16 26N 25W</i>				
<i>Trib. to Hemphill Br.</i>	<i>Lawrence</i>	1.5	<i>NW SW SE 10 2</i>	<i>6N 25W NW NE SE</i>
<i>16 26N 25W</i>				
<i>Hickory Hollow</i>	<i>Lawrence</i>	1.0	<i>SE SE SE 30 26N 25W</i>	<i>SE NE NW</i>
<i>29 26N 25W</i>				
<i>Trib. to Hickory Hollow</i>	<i>Lawrence</i>	0.5	<i>SE SW SE 29 26N 25W</i>	<i>SE SW NE</i>
<i>29 26N 25W</i>				
<i>Trib. to Crane Cr.</i>	<i>Lawrence Stone</i>	0.5	<i>NE NE SE 1 2 26N 25W</i>	<i>NW NW NW</i>
<i>18 26N 24W</i>				
<i>Trib. to Crane Cr.</i>	<i>Lawrence</i>	0.5	<i>SE SE SE 11 26N</i>	<i>25W SE NW SW</i>
<i>13 26N 25W</i>				
<i>Trib. to Crane Cr.</i>	<i>Lawrence</i>	0.3	<i>NE NW NE 14 26N</i>	<i>25W NW SE NE</i>
<i>14 26N 25W</i>				
<i>Trib. to L. Crane Cr.</i>	<i>Lawrence Barry</i>	0.2	<i>NW SE S E 27 26N 25W</i>	<i>SE NE NE</i>
<i>34 26N 25W</i>				

Dry Hollow		Lawrence	2.0	SE SE 35 28N 28W	SE SE 22
28N 28W					
Bear Cr.		Mc Donald	3.0	SE SE SE 28 21N 30W	SW NW NE
35 21N 31W					
Big Sugar Cr.		Mc Donald	1.0	NE SE SW 01 21N 30W	SE NE NW
35 22N 30W					
Missouri Cr.		Mc Donald	4.0	NW 16 21N 30W	SE NW NW
22 21N 31W					
Yarnell Br.		Mc Donald	2.0	SE SE SW 28 21N 33W	NE NE SE
16 21N 33W					
Trib. to Elk R.		Mc Donald	1.0	NE SW 17 21N 33W	NE NE NW
16 21N 33W					
Cave Spring Br.		Mc Donald	1.0	SW 15 21N 34W	NW NE NW
21 21N 34W					
Sugar Fk.		Mc Donald	1.5	NE SE SW 05 23N 32W	SE NE NE
01 23N 33W					
Beaver Br.		Mc Donald	1.0	SW SW SE 08 23N 32W	SW SW SW
17 23N 32W					
Beaver Br.		Mc Donald	2.5	NE SW SW 30 23N 32W	SE NW NE
12 22N 33W					
Trib. to Indian Cr.		Mc Donald	1.5	NW 09 23N 32W	SW NE SE
03 23N 32W					
Dry Fk.		Maries Gasconade	7.7	NE NW NW 05 40N 07W	SE SW NW
29 41N 06W					
Dry Fk.		Maries	5.6	SE SE SE 25 40N 08W	SE SE NE
07 40N 07W					
Klein Br.		Maries	0.8	SE SE SE 29 41N 07W	NE NW SW
33 41N 07W					
Middle Indian Cr.		Newton	2.0	NW NW SW 08 24N 29W	NE NW SW
12 24N 30W					
Spring Cr.		Newton	1.5	SE NE SW 04 26N 33W	NE SW SE
34 27N 33W					
Buffalo Cr.		Newton	4.0	SW SE NE 16 24N 32W	NW NW NE
14 24N 33W					
L. Lost Cr.		Newton	4.0	NE NW SW 31 25N 32W	SW NE NE
32 25N 33W					
Fivemile Cr.		Newton	1.0	NW NE NW 34 26N 33W	NE NE NW
28 26N 33W					
Unnamed trib.		Newton	3.0	NW SE SW 35 25N 33W	SE SE NE
32 25N 33W					
Jones Cr.		Newton Jasper	2.5	NE SW NE 24 27N 31W	SW NE SE
02 27N 31W					
Unnamed trib.		Newton	3.0	NE SE NW 27 27N 32W	NW NW NE
31 27N 32W					
Thurman Cr.		Newton	3.0	NW SE 21 27N 32W	SE SE NW
31 27N 32W					
Trib. to Hickory Cr.		Newton	2.0	03 24N 32W	SW NW NE
30 25N 31W					
Lost Cr.		Newton	2.0	SE NE NW 27 25N 32W	SE NE SW
20 25N 32W					
Rock Br.		Newton	2.0	SW SE NE 05 26N 33W	SE SE NE
12 26N 34W					
Bullskin Cr.		Newton	2.0	NE NE NW 23 24N 32W	SW SW SW
35 24N 32W					
Elm Spring Br.		Newton	4.0	SE SE NW 19 24N 31W	NE NE NE
33 25N 31W					
Frederick Cr.		Oregon	6.5	NE SW SW 02 22N 03W	SW NW NW
15 22N 02W					
Frederick Cr.		Oregon	20.0	SE NE SW 26 24N 05W	NE SW SW
02 22N 03W					
Dry Cr.		Oregon	9.0	SW SW NW 28 24N 03W	SE SW SE
01 22N 03W					

<i>School House Hollow</i>	<i>Oregon</i>	3.0	<i>SW SE SE 36 24N 0</i>	2W	<i>SW SW SW</i>
<i>10 23N 02W</i>					
<i>Greenbriar Hollow</i>	<i>Oregon</i>	4.0	<i>SE NW NE 36 24N 02W</i>		<i>NE SE SE</i>
<i>32 24N 02W</i>					
<i>Freeman Hollow</i>	<i>Oregon</i>	3.0	<i>SW NW NE 14 24N 02W</i>		<i>NE NW NE</i>
<i>32 24N 02W</i>					
<i>Unnamed trib.</i>	<i>Oregon</i>	1.5	<i>SE NW SE 14 24N 02W</i>		<i>NW SW SW</i>
<i>22 24N 02W</i>					
<i>Spring R.</i>	<i>Oregon</i>	2.0	<i>SW SE SE 20 22N 05W</i>		<i>SE SE SW</i>
<i>29 22N 05W</i>					
<i>Sitton Valley</i>	<i>Oregon Carter</i>	4.0	<i>NE SW NE 17 25N 02W</i>		<i>SW NE SE</i>
<i>04 24N 02W</i>					
<i>Dry Prong</i>	<i>Oregon</i>	2.0	<i>SE NE NW 02 24N 02W</i>		<i>SW NE SE</i>
<i>09 24N 02W</i>					
<i>Whites Cr.</i>	<i>Oregon</i>	7.0	<i>NE SE NE 21 25N 02W</i>		<i>NE SW NW</i>
<i>20 24N 02W</i>					
<i>Warm Fork</i>	<i>Oregon</i>	6.0	<i>NW NW NW 07 23N 06W</i>		<i>NW NE SW</i>
<i>23 23N 06W</i>					
<i>Watered Fork</i>	<i>Oregon</i>	4.0	<i>SE SE NW 16 24N 06W</i>		<i>SW SE SW</i>
<i>35 25N 06W</i>					
<i>Water Br.</i>	<i>Oregon</i>	2.0	<i>NW NE SE 19 24N 06W</i>		<i>SW SW NE</i>
<i>31 24N 06W</i>					
<i>L. Hurricane Cr.</i>	<i>Oregon</i>	4.5	<i>SW SW NE 22 24N 04W</i>		<i>SE SE NW</i>
<i>07 24N 03W</i>					
<i>Piney Cr.</i>	<i>Oregon</i>	15.0	<i>NW SW SW 20 24N 04W</i>		<i>SE SW NW</i>
<i>03 22N 03W</i>					
<i>English Cr.</i>	<i>Oregon</i>	2.5	<i>SW SW SW 16 22N 06W</i>		<i>SE SE NE</i>
<i>33 22N 06W</i>					
<i>Rover Br.</i>	<i>Oregon</i>	4.0	<i>NE 27 24N 06W</i>		<i>SE SE SE</i>
<i>31 24N 06W</i>					
<i>Bussell Br.</i>	<i>Oregon Howell</i>	5.0	<i>NW SE 01 22N 07W</i>		<i>SW SW SE</i>
<i>20 22N 06W</i>					
<i>Trib. to Bussell Cr.</i>	<i>Oregon</i>	1.5	<i>NW SW 05 22N 06W</i>		<i>NW SE SW</i>
<i>07 22N 06W</i>					
<i>Unnamed trib.</i>	<i>Osage</i>	3.0	<i>SW NE SW 01 41N 11W</i>		<i>NE NW NW</i>
<i>26 42N 11W</i>					
<i>Unnamed trib.</i>	<i>Osage</i>	3.0	<i>NW SE NE 05 41N 10W</i>		<i>NW NW NW</i>
<i>30 42N 10W</i>					
<i>Pointers Cr.</i>	<i>Osage</i>	3.0	<i>NW SE SW 22 43N 08W</i>		<i>SW SW SW</i>
<i>31 43N 07W</i>					
<i>Owens Cr.</i>	<i>Osage</i>	2.0	<i>NW SE SW 28 43N 08W</i>		<i>NW SW SE</i>
<i>03 42N 08W</i>					
<i>Owens Cr.</i>	<i>Osage</i>	5.0	<i>SW NW SE 21 43N 08W</i>		<i>NW SW SE</i>
<i>03 42N 08W</i>					
<i>Elk Cr.</i>	<i>Osage</i>	4.0	<i>NW SW SE 17 41N 07W</i>		<i>NW NW SE</i>
<i>10 41N 08W</i>					
<i>Unnamed trib.</i>	<i>Ozark</i>	3.0	<i>SW SE SW 01 24N 15W</i>		<i>NE SE SW</i>
<i>15 24N 15W</i>					
<i>Turkey Cr.</i>	<i>Ozark</i>	11.0	<i>SE NW SE 02 24N 15W</i>		<i>SW NE NE</i>
<i>17 23N 15W</i>					
<i>Unnamed trib.</i>	<i>Ozark</i>	3.5	<i>SE SE NW 13 24N 15W</i>		<i>NW NE NE</i>
<i>34 24N 15W</i>					
<i>Unnamed trib.</i>	<i>Ozark</i>	2.5	<i>SE NW SE 32 24N 14W</i>		<i>NW NW NE</i>
<i>35 24N 15W</i>					
<i>South Fk.</i>	<i>Ozark</i>	5.5	<i>NE SW NW 28 24N 14W</i>		<i>SW NW SE</i>
<i>33 24N 15W</i>					
<i>Thompson Hollow</i>	<i>Ozark</i>	3.0	<i>SE NE SW 01 23N 15W</i>		<i>SW NE NE</i>
<i>17 23N 15W</i>					
<i>Smith Hollow</i>	<i>Ozark</i>	2.0	<i>NE NW SW 18 24N 14W</i>		<i>NE NE NE</i>
<i>17 24N 14W</i>					
<i>Gardner Hollow</i>	<i>Ozark</i>	4.0	<i>NW SW SW 24 24N 14W</i>		<i>NE NE SE</i>
<i>01 24N 14W</i>					

<i>Unnamed trib.</i>				
03 33N 13E	Perry	3.0	SW NW NW 27 34N 13E	SE SW NW
<i>Trib. to Blue Spring Br.</i>	Perry	1.0	S NE NE 33 36	N 10E
26 36N 10E				NW SW SE
<i>Bradford Br.</i>	Phelps	2.0	SE SE SE 05 34N 09W	SE NW NE
06 34N 09W				
<i>Corn Cr.</i>	Phelps	8.0	NE SE 02 34N 09W	NE NE SE
35 36N 09W				
<i>Mill Cr.</i>	Phelps	1.5	NW NW NW 04 35N 09W	SE NW SE
29 36N 09W				
<i>Deep Hollow</i>	Phelps	3.0	SW NW SE 18 35N 09W	NE SE NW
32 36N 09W				
<i>Unnamed trib.</i>	Phelps	2.0	NW NE NW 27 37N 06W	NW NW SW
15 37N 06W				
<i>L. Piney Cr.</i>	Phelps Dent	10.0	SE SW SE 06 34N 08W	SW NW SE
04 35N 08W				
<i>Hardester Hollow</i>	Phelps	2.0	SW NW SE 23 36N 10W	NE NW NE
18 36N 09W				
<i>Peno Cr.</i>	Pike	1.0	SW NW NE 20 53N 03W	NE NW SW
17 53N 03W				
<i>Burchard Hollow</i>	Pulaski	1.5	NW NE NE 32 36N 11W	SW NE NW
31 36N 11W				
<i>York Hollow</i>	Pulaski	2.5	SW NW SE 08 35N 12W	SW SW SE
15 35N 12W				
<i>Weeks Hollow</i>	Pulaski	3.0	SW NW SW 23 36N 11W	SW SW SW
02 36N 11W				
<i>Unnamed trib.</i>	Pulaski	1.0	SW NE SW 18 36N 11W	NE NW SW
07 36N 11W				
<i>Collie Hollow</i>	Pulaski	7.0	SE NW NE 24 35N 13W	SE NW SE
17 36N 12W				
<i>Sawmill Hollow</i>	Pulaski	3.0	SE NE NE 29 36N 11W	SE NE SE
07 36N 11W				
<i>Smith Br.</i>	Pulaski	9.0	SW SE NE 08 34N 11W	SE NW SW
07 35N 11W				
<i>Roubidoux Cr.</i>	Pulaski	17.0	SE NE SW 03 34N 12W	SE NE SE
25 36N 12W				
<i>Unnamed trib.</i>	Pulaski	1.0	NE NE NW 13 36N 12W	NE NE NE
12 36N 12W				
<i>Unnamed trib.</i>	Pulaski	2.0	SE SW SW 23 35N 11W	NE SE NE
25 35N 11W				
<i>Dry Br.</i>	Pulaski	4.0	SE 11 35N 11W	C 25 36N
11W				
<i>Weeks Hollow</i>	Pulaski	2.0	NE SW SE 14 36N 11W	SW SW SW
02 36N 11W				
<i>Trib. to Big Piney R.</i>	Pulaski	2.0	NW NE NW 34 35	N 11W
36 35N 11W				NW NW SW
<i>Round Pound Hollow</i>	Pulaski	3.0	SW SW NE 33 36N 1	1W
25 36N 11W				SE SE NW
<i>Gillis Hollow</i>	Pulaski	1.0	SW SE NE 21 36N 11W	NE SW NW
15 36N 11W				
<i>Trib. to Gasconade R.</i>	Pulaski	1.0	NE NW 11 35N 1	3W
03 35N 13W				NW SE NE
<i>Jug Run</i>	Ralls	1.5	NW SE SW 36 55N 06W	SW SW SW
06 54N 05W				
<i>Unnamed trib.</i>	Reynolds	1.0	NE SW SE 16 32N 01E	SE SW SE
20 32N 01E				
<i>Logan Cr.</i>	Reynolds	13.0	NW SW SE 02 30N 02W	SW NW NE
32 30N 01E				
<i>Logan Cr.</i>	Reynolds	8.0	SE SE NW 36 32N 02W	NE SW SE
02 30N 02W				
<i>W. Fk. Huzzah Cr.</i>	Reynolds Dent	4.0	SW NW SW 04	33N 03W
22 34N 03W				NE NW NW

<i>Ellington Hollow</i>	<i>Reynolds</i>	2.0	<i>NE SW SE 05 31N 01</i>	<i>E</i>	<i>NE SE SE</i>
<i>29 32N 01E</i>					
<i>Harrison Valley</i>	<i>Reynolds</i>	5.0	<i>NE SE SW 03 31N 01E</i>		<i>NW SW SW</i>
<i>36 31N 01E</i>					
<i>Sinking Cr.</i>	<i>Reynolds</i>	14.0	<i>NE SE SW 02 31N 01W</i>		<i>SW SE SW</i>
<i>22 30N 02E</i>					
<i>Dry Valley</i>	<i>Reynolds</i>	10.0	<i>SE SW NE 17 31N 01W</i>		<i>NW NW NW</i>
<i>29 30N 01E</i>					
<i>Dickens Valley</i>	<i>Reynolds</i>	10.0	<i>SE NE SW 29 31N 01W</i>		<i>SE NE NW</i>
<i>01 29N 01W</i>					
<i>Tom's Cr.</i>	<i>Reynolds</i>	5.5	<i>NW SE SE 07 32N 02W</i>		<i>NW NW SE</i>
<i>01 32N 02W</i>					
<i>Bee Fk.</i>	<i>Reynolds</i>	6.0	<i>NE SW SE 21 32N 02W</i>		<i>SW SE SE</i>
<i>24 32N 02W</i>					
<i>Bee Fk.</i>	<i>Reynolds</i>	2.0	<i>NW NE SE 19 32N 02W</i>		<i>NE SW SE</i>
<i>21 32N 02W</i>					
<i>Big Cr.</i>	<i>Reynolds</i>	3.5	<i>NW NW SE 19 32N 02W</i>		<i>SW NE NE</i>
<i>06 31N 02W</i>					
<i>Toms Cr.</i>	<i>Reynolds</i>	10.0	<i>SW SW SW 18 32N 02W</i>		<i>NE SE SE</i>
<i>07 32N 02W</i>					
<i>Smalls Cr.</i>	<i>Reynolds</i>	1.5	<i>NW SW SW 07 32N 02W</i>		<i>SE SE SW</i>
<i>06 32N 02W</i>					
<i>Kitchell Cr.</i>	<i>Reynolds</i>	2.0	<i>SE SW SW 17 32N 02W</i>		<i>NE SW SW</i>
<i>15 32N 02W</i>					
<i>L. Barren Cr.</i>	<i>Ripley</i>	12.0	<i>NW NW NW 30 25N 01W</i>		<i>SE SW NW</i>
<i>11 24N 01E</i>					
<i>N. Fk. Buffalo Cr.</i>	<i>Ripley</i>	5.0	<i>SW SW NW 19 24N 01</i>	<i>W</i>	<i>NW NE NE</i>
<i>23 24N 01W</i>					
<i>Unnamed trib.</i>	<i>St. Charles</i>	1.0	<i>SE SE SW 01 45N 01</i>	<i>E SE</i>	<i>NW NW 18</i>
<i>45N 02E</i>					
<i>Callaway Fk.</i>	<i>St. Charles</i>	3.5	<i>NW SW NE 01 45N 01E</i>		<i>SE SE NW</i>
<i>21 45N 02E</i>					
<i>Trib. to Kraut Run</i>	<i>St. Charles</i>	0.5	<i>*LA 38 43 6 L</i>	<i>O 90 46 30 LA 38 43 52 LO 90 46</i>	
<i>30</i>					
<i>Trib. to Dardenne Cr.</i>	<i>St. Charles</i>	1.0	<i>SE SW SE 2</i>	<i>7 46N 02E</i>	<i>46N 02E</i>
<i>Schote Cr.</i>	<i>St. Charles</i>	1.0	<i>*LA 38 42 19 LO 90 45</i>	<i>0 LA 38 42 48 LO 90 43</i>	
<i>51</i>					
<i>Trib. to Schote Cr.</i>	<i>St. Charles</i>	0.7	<i>*LA 38 41 56</i>	<i>LO 90 44 14 LA 38 42 29 LO 90 44</i>	
<i>10</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	1.0	<i>SW SW SE 31</i>	<i>46N 03E</i>	<i>SW NE NW</i>
<i>08 45N 03E</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	1.0	<i>NE NW SW 32</i>	<i>46N 03E</i>	<i>SE SE NW</i>
<i>05 45N 03E</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	1.0	<i>NE NE SW 06</i>	<i>45N 03E</i>	<i>SW NE NE</i>
<i>07 45N 03E</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	0.5	<i>NE SE NW 34</i>	<i>46N 03E</i>	<i>NE NE NE</i>
<i>03 45N 03E</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	1.0	<i>NW SE NW 04</i>	<i>45N 03E</i>	<i>NW SE NE</i>
<i>04 45N 03E</i>					
<i>Trib. to Missouri R.</i>	<i>St. Charles</i>	0.5	<i>NE SE SE 33</i>	<i>46N 03E</i>	<i>SW NW NW</i>
<i>03 45N 03E</i>					
<i>L. Femme Osage Cr.</i>	<i>St. Charles</i>	0.5	<i>NE NE SE 03 4</i>	<i>5N 02E</i>	<i>NW NE SW</i>
<i>03 45N 02E</i>					
<i>Trib. to L. Femme Osage Cr.</i>	<i>St. Charles</i>	1.0	<i>SW NE</i>	<i>NW 01 45N 02E</i>	<i>SW SW SW</i>
<i>06 45N 03E</i>					
<i>Trib. to L. Femme Osage Cr.</i>	<i>St. Charles</i>	0.5	<i>NW 01</i>	<i>45N 02E</i>	<i>SE SE SE</i>
<i>01 45N 02E</i>					
<i>Trib. to L. Femme Osage Cr.</i>	<i>St. Charles</i>	0.5	<i>NW SW</i>	<i>SE 01 45N 02E</i>	<i>SE NW NE</i>
<i>12 45N 02E</i>					
<i>Trib. to L. Femme Osage Cr.</i>	<i>St. Charles</i>	1.0	<i>SW NE</i>	<i>SE 34 46N 02E</i>	<i>NE NE SE</i>
<i>03 45N 02E</i>					

<i>Trib. to L. Femme Osage Cr.</i>	<i>St. Charles</i>	<i>1.5 SW SE</i>	<i>NE 09 45N 02E</i>	<i>SE NE NW</i>
<i>11 45N 02E</i>				
<i>Trib. to Callaway Cr.</i>	<i>St. Charles</i>	<i>1.5 SE SE NW 04</i>	<i>45N 02E</i>	<i>SE NW NW</i>
<i>08 45N 02E</i>				
<i>Trib. to Callaway Cr.</i>	<i>St. Charles</i>	<i>1.5 NW SW SW 3</i>	<i>2 46N 02E</i>	<i>SE NW NW</i>
<i>08 45N 02E</i>				
<i>Trib. to Callaway Cr.</i>	<i>St. Charles</i>	<i>1.5 NW NE NE 0</i>	<i>5 45N 02E</i>	<i>NW SE NW</i>
<i>05 45N 02E</i>				
<i>Trib. to Big R.</i>	<i>St. Francois</i>	<i>0.2 SW SW SE 24 38N</i>	<i>04E</i>	<i>SW NE NW</i>
<i>25 38N 04E</i>				
<i>Keifer Cr.</i>	<i>St. Louis</i>	<i>3.0 NE NW NW 04 44N 04E</i>		<i>NW SE SE</i>
<i>14 44N 04E</i>				
<i>Trib. to Keifer Cr.</i>	<i>St. Louis</i>	<i>1.0 SE NE NE 05 44</i>	<i>N 04E</i>	<i>NW SW NE</i>
<i>09 44N 04E</i>				
<i>Fishpot Cr.</i>	<i>St. Louis</i>	<i>5.0 NW NE SW 01 45N 04E</i>		<i>NE NE SW</i>
<i>13 44N 04E</i>				
<i>Fishpot Cr.</i>	<i>St. Louis</i>	<i>5.0 NW NE SW 01 45N 04E</i>		<i>NE NW NW</i>
<i>13 44N 04E</i>				
<i>Trib. to Fishpot Cr.</i>	<i>St. Louis</i>	<i>2.0 NW NW SE 03 4</i>	<i>4N 04E</i>	<i>NW NW NW</i>
<i>13 44N 04E</i>				
<i>Trib. to Wildhorse Cr.</i>	<i>St. Louis</i>	<i>0.5 SE SE SE 32</i>	<i>45N 03E</i>	<i>WSW NE</i>
<i>32 45N 03E</i>				
<i>Bonhomme Cr.</i>	<i>St. Louis</i>	<i>0.7 SE NW NE 11 44N 03E</i>		<i>SE SW NE</i>
<i>02 44N 03E</i>				
<i>Trib. to Bonhomme Cr.</i>	<i>St. Louis</i>	<i>1.0 NW SW NW 02</i>	<i>44N 03E</i>	<i>NE SW SW</i>
<i>35 45N 03E</i>				
<i>Trib. to Bonhomme Cr.</i>	<i>St. Louis</i>	<i>1.0 SE NE SE 03</i>	<i>44N 03E</i>	<i>SE SW SW</i>
<i>35 45N 03E</i>				
<i>Hamilton Cr.</i>	<i>St. Louis</i>	<i>0.5 SW NW SE 10 44N 03E</i>		<i>NE NW NW</i>
<i>14 44N 03E</i>				
<i>Hamilton Cr.</i>	<i>St. Louis</i>	<i>0.5 NE SE NW 14 44N 03E</i>		<i>NW SE NE</i>
<i>14 44N 03E</i>				
<i>Trib. to Hamilton Cr.</i>	<i>St. Louis</i>	<i>1.0 SW NE NW 12</i>	<i>44N 03E</i>	<i>SE SE NE</i>
<i>14 44N 03E</i>				
<i>Caulks Cr.</i>	<i>St. Louis</i>	<i>0.5 NE SW NE 06 44N 04E</i>		<i>NE NE SW</i>
<i>31 45N 04E</i>				
<i>Caulks Cr.</i>	<i>St. Louis</i>	<i>3.0 NW NW SW 06 44N 04E</i>		<i>NE SE SE</i>
<i>13 45N 03E</i>				
<i>Trib. to Caulks Cr.</i>	<i>St. Louis</i>	<i>1.0 NW SW NW 32 45</i>	<i>N 04E</i>	<i>NW SE SW</i>
<i>30 45N 04E</i>				
<i>Trib. to Mississippi R.</i>	<i>St. Louis</i>	<i>0.2 NW NW SE 2</i>	<i>4 43N 06E</i>	<i>NW NW SE</i>
<i>24 43N 06E</i>				
<i>Trib. to Fox Cr.</i>	<i>St. Louis</i>	<i>2.0 SW SW NW 16 44N 0</i>	<i>3E S</i>	<i>ENW SE 19</i>
<i>44N 03E</i>				
<i>S. Fk. Saline Cr.</i>	<i>Ste. Genevieve Perry</i>	<i>5.0 SE NW</i>	<i>SW 30 35N 09E</i>	<i>NE SW SE</i>
<i>35 35N 09E</i>				
<i>Anderson Hollow</i>	<i>Ste. Genevieve</i>	<i>3.0 SE NE SW 34 3</i>	<i>5N 08E</i>	<i>SE NW SW</i>
<i>30 35N 09E</i>				
<i>Birch Cr.</i>	<i>Shannon</i>	<i>7.0 SE SE 21 27N 05W SW</i>		<i>NE SW 20</i>
<i>26N 05W</i>				
<i>Unnamed trib.</i>	<i>Shannon</i>	<i>1.5 NE SW SW 08 29N 06W</i>		<i>SE SW NE</i>
<i>16 29N 06W</i>				
<i>Johnny Hollow</i>	<i>Shannon</i>	<i>1.0 SW NE SE 06 27N 05W</i>		<i>SW NW SE</i>
<i>36 28N 06W</i>				
<i>Black Valley Cr.</i>	<i>Shannon</i>	<i>6.0 SW NW NW 27 30N 06W</i>		<i>NE SE NW</i>
<i>05 29N 05W</i>				
<i>Birch Cr.</i>	<i>Shannon</i>	<i>6.0 NW NE SW 32 27N 05W</i>		<i>SW NE SW</i>
<i>20 26N 05W</i>				
<i>Unnamed trib.</i>	<i>Shannon</i>	<i>3.0 NW SE SE 31 27N 05W</i>		<i>NW SW NW</i>
<i>18 26N 05W</i>				
<i>Unnamed trib.</i>	<i>Shannon</i>	<i>4.0 NE NW NW 34 27N 06W</i>		<i>NE SE NW</i>
<i>12 26N 06W</i>				

<i>Spring Cr.</i>	<i>Shannon Oregon</i>	18.0	NE SE NW 08 26N 06	W	NE NW NW
27 25N 04W					
<i>Sycamore Cr.</i>	<i>Shannon</i>	6.0	SW NW NW 01 27N 04W		NW SE SE
22 27N 03W					
<i>Pike Cr.</i>	<i>Shannon Carter</i>	24.0	SW SE SW 16 27N 04W		NW NW SW
24 27N 01W					
<i>Pine Hollow</i>	<i>Shannon</i>	2.0	SW NW NW 30 28N 04W		NE NW NE
17 28N 04W					
<i>L. Hurricane Cr.</i>	<i>Shannon</i>	4.5	SE NW NW 21 27N 04W		SW NW SE
10 26N 04W					
<i>Hurricane Cr.</i>	<i>Shannon Oregon</i>	15.0	SW NW SE 10 26	N 04W	NE NE SW
34 25N 03W					
<i>Bee Fork Cr.</i>	<i>Shannon Oregon</i>	7.0	SW SW SW 11 26N	05W	SE SE NW
11 25N 05W					
<i>Young Hollow</i>	<i>Shannon Carter</i>	3.5	SW SE SW 10 26N	03W	SW NE NW
18 26N 02W					
<i>Unnamed trib.</i>	<i>Stone</i>	0.8	NE NW SW 20 23N 22W		NW NW NE
30 23N 22W					
<i>Indian Cr.</i>	<i>Stone</i>	1.5	SW NW SW 18 23N 22W		NW NW NE
30 23N 22W					
<i>Unnamed trib.</i>	<i>Stone</i>	1.5	NE SW SW 35 24N 23W		NW NE SE
26 24N 23W					
<i>Devil Den Hollow</i>	<i>Stone</i>	1.5	NE SE NW 27 23N 23W		SE NE SE
20 23N 23W					
<i>Schooner Cr.</i>	<i>Stone</i>	0.5	SW SW NW 26 23N 23W		NW NE NE
34 23N 23W					
<i>W. Prong Goff Cr.</i>	<i>Stone</i>	3.5	NW NW SE 06 24N 22W		NW SE NW
29 25N 22W					
<i>Trib. to W. Prong Goff Cr.</i>	<i>Stone</i>	2.0	SE NE NE 06	24N 22W	SE NE NW
32 25N 22W					
<i>Trib. to W. Prong Goff Cr.</i>	<i>Stone</i>	2.0	NW SW SE 30	25N 22W	NE SE SE
13 25N 23W					
<i>Cave Spring Hollow</i>	<i>Stone</i>	1.5	SE NW NW 25 25N 24W		NW SE SW
19 25N 23W					
<i>Wheeler Br.</i>	<i>Stone</i>	2.0	NE SW SE 14 25N 24W		SW NE SW
19 25N 23W					
<i>Hilton Hollow</i>	<i>Stone</i>	1.5	NE NE NW 20 25N 24W		NW SE NE
17 25N 24W					
<i>Unnamed Trib.</i>	<i>Stone</i>	1.5	NE SE SE 15 25N 24W		SE SW NW
10 25N 24W					
<i>Pine Run</i>	<i>Stone</i>	3.0	NW NE NW 23 25N 24W		SE NW SW
31 25N 23W					
<i>Unnamed trib.</i>	<i>Stone</i>	2.5	NW NE SE 13 25N 24W		SW SE SW
01 25N 24W					
<i>Rickman Spring Hollow</i>	<i>Stone</i>	1.5	NW NE NW 26 26N	24W	NW SE NE
25 26N 24W					
<i>McCord Br.</i>	<i>Stone</i>	6.0	NW SE SW 05 26N 24W		NE NE SW
02 25N 24W					
<i>Dodge Hollow</i>	<i>Stone</i>	1.5	SW NW SE 06 25N 24W		SW SE NW
04 25N 24W					
<i>L. Crane Cr.</i>	<i>Stone</i>	1.5	SE NW SW 31 26N 24W		SW SE SW
29 26N 24W					
<i>Right Hand Hollow</i>	<i>Stone</i>	1.0	SW NW SE 29 24N 23W		NW NW SE
19 24N 23W					
<i>Wilson Run</i>	<i>Stone</i>	1.0	NE SW SE 21 24N 23W		SW SE SE
17 24N 23W					
<i>Horse Cr.</i>	<i>Stone</i>	2.0	SW SE NW 31 25N 22W		SW NE NE
26 25N 23W					
<i>Trib. to Horse Cr.</i>	<i>Stone</i>	0.5	SE SE NE 36 25N 23W		NE NW SE
27 25N 23W					
<i>John Hollow</i>	<i>Stone</i>	2.0	SW NW SE 31 25N 22W		SE SE SE
04 24N 23W					

<i>L. John Hollow</i>	Stone	1.5 NW SW SE 36 25N 23W	NE SE SW
04 24N 23W			
<i>Smith Brown Hollow</i>	Stone	2.0 NW SW SE 23 26N 23W	SE SE SW
36 26N 23W			
<i>Wilson Run</i>	Stone	1.5 SE NE SE 33 24N 23W	SE SE NE
28 24N 23W			
<i>Trib. to Hilton Hollow</i>	Stone	1.5 NE SW NW 22 25N 24W	NW NE NW
15 25N 24W			
<i>Trib. to Hilton Hollow</i>	Stone	1.5 NW NE SW 18 25N 24W	SW NW NE
17 25N 24W			
<i>Trib. to Hilton Hollow</i>	Stone	0.5 SW SW SE 18 25N 24W	NE SW NW
17 25N 24W			
<i>Trib. to McCullah Hollow</i>	Stone	0.5 NE SE NW 03 2 6N 24W	SW NE NE
03 26N 24W			
<i>Trib. to McCullah Hollow</i>	Stone Christian	1.5 SW NE NW 05 26N 24W	NW NW SE
04 26N 24W			
<i>Trib. to McCullah Hollow</i>	Stone	0.5 NE SE NW 05 2 6N 24W	NW SW NW
04 26N 24W			
<i>Trib. to Railey Cr.</i>	Stone	1.0 SW NE NE 02 23N 23W	W SW NW SW
25 24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	1.0 N SE SE 35 24N 23W	NW SW 25
24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	1.5 NW NW NE 07 24N 22W	NE SW SW
12 24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	2.5 NW NE NE 19 24N 22W	NE SW SW
12 24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	1.5 NE NW SE 19 24N 22W	NE SE NE
26 24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	1.5 NW SE NW 19 24N 22W	NW SE NE
23 24N 23W			
<i>Trib. to Railey Cr.</i>	Stone	0.3 NW SW NE 23 24N 23W	NW SE NW
23 24N 23W			
<i>Trib. to McCord Cr.</i>	Stone	0.3 NW SE SE 08 26N 24W	SE NW NW
16 26N 24W			
<i>Trib. to McCord Cr.</i>	Stone	1.0 NW NE NW 17 26N 24W	NE SW NE
16 26N 24W			
<i>Trib. to McCord Cr.</i>	Stone	1.0 NE NE NW 15 26N 24W	NW SW SW
15 26N 24W			
<i>Trib. to Spring Cr.</i>	Stone	0.5 SE SW NE 26 26N 24W	SE NW NW
25 26N 24W			
<i>Trib. to Spring Cr.</i>	Stone	0.5 SW SE NE 26 26N 24W	SE SE NW
25 26N 24W			
<i>Trib. to Spring Cr.</i>	Stone	1.0 SE NE SE 26 26N 24W	NW SW NE
25 26N 24W			
<i>Trib. to Spring Cr.</i>	Stone	1.0 NE NW NW 05 26N 23W	SW SW SE
31 27N 23W			
<i>Trib. to Spring Cr.</i>	Stone	1.0 SW NE NW 05 26N 23W	SW SE NW
06 26N 23W			
<i>Trib. to Spring Cr.</i>	Stone	1.5 NE SE NW 05 26N 23W	NW SE SW
07 26N 23W			
<i>Trib. to Spring Cr.</i>	Stone	1.5 NW NE NE 08 26N 23W	NW SE SW
07 26N 23W			
<i>Trib. to Spring Cr.</i>	Stone	1.0 NE NE SE 08 26N 23W	SE NE SE
07 26N 23W			
<i>Trib. to Spring Cr.</i>	Stone	1.0 NW SE NW 17 26N 23W	NW SW SE
07 26N 23W			
<i>Trib. to Crane Cr.</i>	Stone	0.5 SW NE SW 09 26N 23W	SE NE NW
15 26N 23W			
<i>Crane Cr.</i>	Stone	0.5 SE NE NW 32 26N 24W	SW NE SE
32 26N 24W			
<i>Trib. to Crane Cr.</i>	Stone	2.0 NW NW SE 06 26N 24W	SE SW NW
18 26N 24W			

<i>Trib. to Crane Cr.</i>	<i>Stone</i>	<i>1.0 NE NE NW 16 26N 23W</i>	<i>SE SE NW</i>
<i>15 26N 23W</i>			
<i>Trib. to Crane Cr.</i>	<i>Stone</i>	<i>1.5 NE SW NW 16 26N 23W</i>	<i>SE NW NE</i>
<i>22 26N 23W</i>			
<i>Trib. to Crane Cr.</i>	<i>Stone</i>	<i>1.0 NE SW SW 21 26N 23W</i>	<i>NE NW SW</i>
<i>27 26N 23W</i>			
<i>Trib. to Crane Cr.</i>	<i>Stone</i>	<i>1.0 NE SE NW 32 26N 23W</i>	<i>SE NE SW</i>
<i>33 26N 23W</i>			
<i>Trib. to Crane Cr.</i>	<i>Stone</i>	<i>0.5 SE SW NW 07 25N 23W</i>	<i>NW NW NE</i>
<i>07 25N 23W</i>			
<i>Old Stillhouse Hollow</i>	<i>Stone</i>	<i>1.0 NE NE NW 35 26N 23W</i>	<i>SW NE SE</i>
<i>35 26N 23W</i>			
<i>Trib. to Old Stillhouse Hollow</i>	<i>Stone</i>	<i>0.5 NW SW S W 35 26N 23W</i>	<i>NW NW SE</i>
<i>35 26N 23W</i>			
<i>Trib. to Wheeler Br.</i>	<i>Stone</i>	<i>1.0 NE NE SE 13 25N 2 4W</i>	<i>SW SW NW</i>
<i>19 25N 23W</i>			
<i>Trib. to Swan Cr.</i>	<i>Taney</i>	<i>0.5 SE NE NE 13 24N 20W</i>	<i>NE NW NE</i>
<i>13 24N 20W</i>			
<i>Trib. to Swan Cr.</i>	<i>Taney</i>	<i>0.5 NW NW NW 27 24N 19W</i>	<i>SW NE SE</i>
<i>21 24N 19W</i>			
<i>Trib. to Silver Cr.</i>	<i>Taney</i>	<i>0.5 NW SE SE 16 23N 20 W</i>	<i>SW NE SW</i>
<i>16 23N 20W</i>			
<i>Brushy Cr.</i>	<i>Texas</i>	<i>2.5 SW NW SW 07 32N 08W</i>	<i>SW NW SE</i>
<i>10 32N 09W</i>			
<i>Spring Cr.</i>	<i>Texas</i>	<i>2.0 NE NE NW 32 33N 08W</i>	<i>NW SW SE</i>
<i>36 33N 09W</i>			
<i>Musgrave Hollow</i>	<i>Texas</i>	<i>1.0 SE SE SE 09 33N 11W</i>	<i>NW SE SE</i>
<i>04 33N 11W</i>			
<i>Spring Cr.</i>	<i>Texas Phelps</i>	<i>17.0 NE NE SE 01 32N 09W</i>	<i>SE NW SE</i>
<i>36 35N 10W</i>			
<i>Big Cr.</i>	<i>Texas Shannon</i>	<i>13.0 SE NE SE 17 30N 07W</i>	<i>NE NW SW</i>
<i>04 31N 06W</i>			
<i>Kelly Hollow</i>	<i>Texas</i>	<i>3.0 NW SW SE 32 31N 08W</i>	<i>SE SW NW</i>
<i>25 31N 09W</i>			
<i>L. Paddy Cr.</i>	<i>Texas</i>	<i>1.5 NW NE NW 03 32N 11W</i>	<i>NW SE SE</i>
<i>35 33N 11W</i>			
<i>B. Paddy Cr.</i>	<i>Texas</i>	<i>3.0 SW NW SW 24 32N 11W</i>	<i>NE NE NE</i>
<i>18 32N 10W</i>			
<i>Bald Ridge Cr.</i>	<i>Texas Pulaski</i>	<i>5.5 SW SE NW 22 33N 11W</i>	<i>NW SW NE</i>
<i>36 34N 11W</i>			
<i>Castro Valley</i>	<i>Texas Shannon</i>	<i>8.0 NE SE NW 01 29N 07W</i>	<i>NW SE NW</i>
<i>06 29N 05W</i>			
<i>Mooney Br.</i>	<i>Texas</i>	<i>2.0 NE NE NE 19 33N 09W</i>	<i>NE SW NW</i>
<i>12 33N 10W</i>			
<i>Van Zant Cr.</i>	<i>Texas</i>	<i>2.5 SW NE SW 19 29N 11W</i>	<i>NE SW NE</i>
<i>14 29N 12W</i>			
<i>Spring Valley</i>	<i>Texas Shannon</i>	<i>29.0 SW SW SE 13 29N 08W</i>	<i>SE SE NW</i>
<i>20 30N 04W</i>			
<i>Dry Bone Cr.</i>	<i>Texas</i>	<i>1.0 NW SW SW 21 30N 07W</i>	<i>SE NE SE</i>
<i>17 30N 07W</i>			
<i>S. Ashley Cr.</i>	<i>Texas Dent</i>	<i>6.0 NE SE NW 18 31N 07W</i>	<i>SW SE NE</i>
<i>34 32N 07W</i>			
<i>Trib. to Piney Cr.</i>	<i>Texas</i>	<i>1.5 SE SE SW 04 29N 10W</i>	<i>NE NE NE</i>
<i>03 29N 10W</i>			
<i>Trib. to N.Fk. Charrette Cr.</i>	<i>Warren</i>	<i>0.5 S2 33 47 N 02W</i>	<i>SE SE NE</i>
<i>04 46N 02W</i>			
<i>Unnamed Trib. to Smoot Hollow</i>	<i>Wayne</i>	<i>2.0 NE SE SE 34 28N 05E</i>	<i>NW SW SE</i>
<i>07 27N 06E</i>			
<i>Pleasant Valley</i>	<i>Wayne</i>	<i>2.5 SW SW SW 34 28N 05E</i>	<i>SE SE NW</i>
<i>23 28N 05E</i>			
<i>Barren Fk.</i>	<i>Wayne</i>	<i>3.0 NW SE NW 03 28N 04E</i>	<i>SW NE SE</i>
<i>21 28N 04E</i>			

<i>Smoot Hollow</i>	<i>Wayne</i>	4.0	SE SW SE 33 28N 05E	NE NE SW
07 27N 06E				
<i>Otter Cr.</i>	<i>Wayne</i>	16.0	NE NE NW 05 28N 04E	SW NW NW
18 27N 06E				
<i>Unnamed Trib.</i>	<i>Wayne</i>	1.0	SW SW SW 32 29N 04E	SW SW SW
31 29N 04E				
<i>Terrel Br.</i>	<i>Webster</i>	2.0	NE SW NE 08 28N 18W	NW SW NE
20 28N 18W				
<i>Burks Hollow</i>	<i>Webster</i>	2.5	SE SE SE 36 29N 19W	NW NE SE
23 29N 19W				
<i>White Oak Cr.</i>	<i>Webster</i>	1.0	NW NW NW 16 28N 19W	NW NE NE
18 28N 19W				
<i>Davis Br.</i>	<i>Webster</i>	0.5	SW SE NE 21 28N 18W	SE NW SE
21 28N 18W				
<i>Pedelo Cr.</i>	<i>Webster Christian</i>	4.5	NE SW SW 22 28N 19W	NW NW SE
06 27N 19W				
<i>Pedelo Cr.</i>	<i>Webster</i>	3.0	SW SE NW 24 28N 19W	NE SW SW
22 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	0.5	NW NW SE 14 28N 19W	NW SW NE
23 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	0.5	SE NW SW 14 28N 19W	SE NE NE
22 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	1.5	SW NE SW 23 28N 19W	NW SE NW
27 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	2.0	NW NW NE 25 28N 19W	SE SE SW
27 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	1.0	SW NW SW 24 28N 19W	SE SW NE
26 28N 19W				
<i>Trib. to Pedelo Cr.</i>	<i>Webster</i>	0.5	NW SW SW 25 28N 19W	SE SE NW
26 28N 19W				
<i>Greasy Cr.</i>	<i>Webster</i>	0.5	SE NW SE 13 28N 19W	SE SE SE
13 28N 19W				
<i>Peck Hollow</i>	<i>Webster</i>	0.5	NW NW NE 21 28N 19W	SW SW NW
21 28N 19W				
<i>Peck Hollow</i>	<i>Webster Christian</i>	2.0	SW SW NW 21 28N 19W	NW NE SE
32 28N 19W				
<i>Trib. to Peck Hollow</i>	<i>Webster</i>	1.0	SE SW NE 21 28N 19W	SW SW SW
21 28N 19W				
<i>Sawyer Cr.</i>	<i>Webster</i>	2.0	NW SW SW 17 28N 19W	NW SE SW
07 28N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	0.5	NE SW NW 20 28N 19W	NE SW SW
17 28N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	0.5	SW SW SE 18 28N 19W	SW SE NE
18 28N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	1.5	NE NE NW 32 29N 19W	SE NW SE
36 29N 20W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	0.5	NE NE NW 31 29N 19W	NE NE SW
31 29N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	0.5	SW SE NE 08 28N 19W	NE NE SE
07 28N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	1.0	NW NE NW 08 28N 19W	SW SE NW
07 28N 19W				
<i>Trib. to Sawyer Cr.</i>	<i>Webster</i>	0.5	NW NE NE 07 28N 19W	NE SW NW
07 28N 19W				
<i>Panther Cr.</i>	<i>Webster</i>	1.0	NE NE NW 35 29N 18W	NE NE NE
34 29N 18W				
<i>Trib. to Panther Cr.</i>	<i>Webster</i>	0.5	SW NE SW 26 29N 18W	NE NE NE
34 29N 18W				
<i>Trib. to Panther Cr.</i>	<i>Webster</i>	1.5	NE NE SW 15 29N 19W	SW SW SW
22 29N 19W				
<i>Dry Fk. Panther Cr.</i>	<i>Webster</i>	1.5	NW NE SE 12 28N 19W	NW NE SW
11 28N 19W				

<i>Dry Fk. Panther Cr.</i>	<i>Webster</i>	<i>1.0 NW NE SW 03 28N</i>	<i>19W</i>	<i>SE SE NE</i>
<i>33 29N 19W</i>				
<i>Trib. to Dry Fk. Panther Cr.</i>	<i>Webster</i>	<i>0.5 SW SE N</i>	<i>E 09 28N 19W</i>	<i>NW NW NW</i>
<i>10 28N 19W</i>				
<i>Trib. to Dry Fk. Panther Cr.</i>	<i>Webster</i>	<i>3.0 NW SW N</i>	<i>W 06 28N 18W</i>	<i>SE SE SE</i>
<i>28 29N 19W</i>				
<i>Trib. to Dry Fk. Panther Cr.</i>	<i>Webster</i>	<i>1.5 NE SW S</i>	<i>W 01 28N 19W</i>	<i>NE NE SW</i>
<i>11 28N 19W</i>				
<i>Trib. to Dry Fk. Panther Cr.</i>	<i>Webster</i>	<i>0.5 SE NE N</i>	<i>W 14 28N 19W</i>	<i>NW NE SW</i>
<i>11 28N 19W</i>				
<i>Trib. to Cry Fk. Panther Cr.</i>	<i>Webster</i>	<i>0.5 SE NE S</i>	<i>E 11 28N 19W</i>	<i>SE NE SW</i>
<i>11 28N 19W</i>				
<i>Compton Br.</i>	<i>Webster</i>	<i>1.5 NE NE NW 15 29N 19W</i>		<i>SW NW SW</i>
<i>09 29N 19W</i>				
<i>Trib. to Compton Br.</i>	<i>Webster</i>	<i>0.5 NE SE SW 10 29N</i>	<i>19W</i>	<i>SW SE SE</i>
<i>09 29N 19W</i>				
<i>Trib. to James R.</i>	<i>Webster</i>	<i>0.5 NE SE SW 34 29N 17</i>	<i>W</i>	<i>NW SE NE</i>
<i>34 29N 17W</i>				
<i>Trib. to James R.</i>	<i>Webster</i>	<i>1.0 SE SW SE 34 29N 17</i>	<i>W</i>	<i>NW SE SE</i>
<i>27 29N 17W</i>				
<i>Norman Br.</i>	<i>Webster</i>	<i>2.0 SW NW NE 09 28N 19W</i>		<i>NW SW NE</i>
<i>06 28N 19W</i>				
<i>Trib. to Norman Br.</i>	<i>Webster</i>	<i>0.5 04 28N 19W</i>		<i>05 28N 19W</i>
<i>Trib. to Norman Br.</i>	<i>Webster</i>	<i>1.0 SW SW SW 33 29N</i>	<i>19W</i>	<i>NW SW NE</i>
<i>06 28N 19W</i>				
<i>Trib. to Norman Br.</i>	<i>Webster</i>	<i>0.5 NW NW NW 09 28N</i>	<i>19W</i>	<i>NW NE SE</i>
<i>05 28N 19W</i>				
<i>White Oak Hollow</i>	<i>Webster</i>	<i>1.0 SW SW SE 10 28N 19W</i>		<i>SW NE NW</i>
<i>16 28N 19W</i>				
<i>Trib. to White Oak Hollow</i>	<i>Webster</i>	<i>1.0 SE NE SE 1</i>	<i>6 28N 19W</i>	<i>SE SE NE</i>
<i>17 28N 19W</i>				
<i>Trib. to White Oak Hollow</i>	<i>Webster</i>	<i>0.5 NE SW SE 0</i>	<i>9 28N 19W</i>	<i>NE NW NW</i>
<i>16 28N 19W</i>				
<i>Trib. to White Oak Hollow</i>	<i>Webster</i>	<i>1.0 SE NW SE 0</i>	<i>8 28N 19W</i>	<i>NE NE NE</i>
<i>18 28N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>2.0 SE NW SE 07</i>	<i>29N 18W</i>	<i>SE NW SE</i>
<i>11 29N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>0.5 NW NW NE 07</i>	<i>29N 18W</i>	<i>NE SW NW</i>
<i>07 29N 18W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>1.0 NE SW SW 07</i>	<i>29N 18W</i>	<i>NE NW SE</i>
<i>11 29N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>1.0 NW NW NE 13</i>	<i>29N 19W</i>	<i>NW NE SE</i>
<i>11 29N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>0.5 SW NW NE 13</i>	<i>29N 19W</i>	<i>NE SW SW</i>
<i>12 29N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>0.5 SW SW NW 13</i>	<i>29N 19W</i>	<i>SE NE SE</i>
<i>11 29N 19W</i>				
<i>Trib. to N. Carolina Cr.</i>	<i>Webster</i>	<i>0.5 NE NW NE 14</i>	<i>29N 19W</i>	<i>SE SW NE</i>
<i>11 29N 19W</i>				
<i>Dry Cr.</i>	<i>Webster</i>	<i>0.5 SE 05 29N 18W</i>		<i>NW 05 29N</i>
<i>18W</i>				
<i>Trib. to Dry Cr.</i>	<i>Webster</i>	<i>1.0 NW SE NW 24 29N 18W</i>		<i>NW NW NE</i>
<i>23 29N 18W</i>				
<i>Trib. to Dry Cr.</i>	<i>Webster</i>	<i>0.5 SW NW SW 24 29N 18W</i>		<i>NW NW NE</i>
<i>23 29N 18W</i>				
<i>Trib. to Dry Cr.</i>	<i>Webster</i>	<i>1.0 SE SW SE 23 29N 18W</i>		<i>NW NW NE</i>
<i>23 29N 18W</i>				
<i>L. Finley Cr.</i>	<i>Webster</i>	<i>0.5 SE SE SE 03 28N 17W</i>		<i>SE NW SE</i>
<i>04 28N 17W</i>				
<i>Trib. to Dry Cr.</i>	<i>Webster</i>	<i>1.0 SE NW NW 26 29N 18W</i>		<i>SW SE SW</i>
<i>14 29N 18W</i>				

<i>Trib. to L. Finley Cr.</i>	<i>Webster</i>	<i>0.5 SW SE NE 09 2</i>	<i>8N 17W</i>	<i>SE SW NW</i>
<i>09 28N 17W</i>				
<i>Trib. to L. Finley Cr.</i>	<i>Webster</i>	<i>0.5 NE SE NE 09 2</i>	<i>8N 17W</i>	<i>NW SE SE</i>
<i>04 28N 17W</i>				
<i>Trib. to L. Finley Cr.</i>	<i>Webster</i>	<i>0.5 SE SE NW 10 2</i>	<i>8N 17W</i>	<i>NE NE NW</i>
<i>10 28N 17W</i>				
<i>Trib. to Finley Cr.</i>	<i>Webster</i>	<i>0.3 SW SW SE 02 28N</i>	<i>17W</i>	<i>NE SE NE</i>
<i>11 28N 17W</i>				
<i>Unnamed Trib.</i>	<i>Webster</i>	<i>3.0 SW NW SW 25 29N 18W</i>		<i>NE NE NW</i>
<i>18 29N 17W</i>				
<i>Davis Br.</i>	<i>Webster</i>	<i>4.5 NW NE NE 36 29N 18W</i>		<i>SE NW SW</i>
<i>11 28N 18W</i>				
<i>Trib. to Davis Cr.</i>	<i>Webster</i>	<i>1.0 NE NE NE 09 28N 1</i>	<i>8W</i>	<i>SW NW NE</i>
<i>16 28N 18W</i>				
<i>Trib. to Davis Br.</i>	<i>Webster</i>	<i>1.0 NW NE NW 36 29N 1</i>	<i>8W</i>	<i>SE NW NW</i>
<i>01 28N 18W</i>				
<i>Trib. to Davis Br.</i>	<i>Webster</i>	<i>0.5 SW NW NW 36 29N 1</i>	<i>8W</i>	<i>NE NW SW</i>
<i>36 29N 18W</i>				
<i>Trib. to James R.</i>	<i>Webster</i>	<i>0.5 NE NE SE 26 29N 17</i>	<i>W</i>	<i>SW SW SE</i>
<i>23 29N 17W</i>				
<i>Trib. to Davis Br.</i>	<i>Webster</i>	<i>0.5 NE NE SW 01 28N 1</i>	<i>8W</i>	<i>NW NE NE</i>
<i>02 28N 18W</i>				
<i>Trib. to Davis Br.</i>	<i>Webster</i>	<i>0.5 NW NE NW 12 28N 1</i>	<i>8W</i>	<i>SE SW SE</i>
<i>02 28N 18W</i>				
<i>Trib. to James R.</i>	<i>Webster</i>	<i>0.5 NW SE NW 26 29N 17</i>	<i>W</i>	<i>SE SE SW</i>
<i>23 29N 17W</i>				
<i>W. Wildcat Cr.</i>	<i>Webster</i>	<i>1.0 SW SE SW 29 29N 17W</i>		<i>NW SW SW</i>
<i>20 29N 17W</i>				
<i>W. Wildcat Cr.</i>	<i>Webster</i>	<i>3.0 NE SE SE 25 29N 18W</i>		<i>NW SE SW</i>
<i>17 29N 17W</i>				
<i>Trib. to W. Wildcat Cr.</i>	<i>Webster</i>	<i>0.5 NE SW SE 29</i>	<i>29N 17W</i>	<i>SE SE NE</i>
<i>30 29N 17W</i>				
<i>Trib. to W. Wildcat Cr.</i>	<i>Webster</i>	<i>0.5 SW SE NE 25</i>	<i>29N 18W</i>	<i>NW NW NE</i>
<i>30 29N 17W</i>				
<i>Trib. to James R.</i>	<i>Webster</i>	<i>0.3 NW SE NW 34 29N 17</i>	<i>W</i>	<i>SE SE SW</i>
<i>27 29N 17W</i>				
<i>Trib. to Osage Fk.</i>	<i>Webster</i>	<i>0.5 SW NE SW 12 30N 1</i>	<i>8W</i>	<i>NE NW SW</i>
<i>07 30N 17W</i>				
<i>Trib. to Osage Fk.</i>	<i>Webster</i>	<i>0.5 NE NW NE 13 30N 1</i>	<i>8W</i>	<i>NE NW SW</i>
<i>07 30N 17W</i>				
<i>W. Fk. Niangua R.</i>	<i>Webster</i>	<i>0.4 NW NW SE 28 31N 18</i>	<i>W</i>	<i>NW SE NW</i>
<i>28 31N 18W</i>				
<i>W. Fk. Niangua R.</i>	<i>Webster</i>	<i>0.9 NE SW NW 04 31N 18</i>	<i>W</i>	<i>SE NE SW</i>
<i>33 32N 18W</i>				
<i>Trib. to W. Fk. Niangua R.</i>	<i>Webster</i>	<i>0.5 NE SE NE</i>	<i>28 31N 18W</i>	<i>SW SW NE</i>
<i>28 31N 18W</i>				
<i>E. Fk. Niangua R.</i>	<i>Webster</i>	<i>1.0 NW NE NW 03 31N 18</i>	<i>W</i>	<i>SE NE SW</i>
<i>33 32N 18W</i>				
<i>Niangua R.</i>	<i>Webster</i>	<i>0.4 SE NE SW 33 32N 18W</i>		<i>SE SW NW</i>
<i>33 32N 18W</i>				
<i>Givins Br.</i>	<i>Webster</i>	<i>3.6 SW SW NW 01 31N 19W</i>		<i>SW SW NW</i>
<i>29 32N 18W</i>				
<i>Hawk Pond Br.</i>	<i>Webster</i>	<i>2.1 NW NE NE 35 32N 19W</i>		<i>NW SW SW</i>
<i>19 32N 18W</i>				
<i>Unnamed Trib.</i>	<i>Wright</i>	<i>3.0 SE SW SE 18 28N 13W</i>		<i>NW NW NE</i>
<i>05 28N 13W</i>				
<i>Fox Cr.</i>	<i>Wright Douglas</i>	<i>4.0 NW NE NE 30 28N 13W</i>		<i>SW NE NE</i>
<i>09 27N 13W</i>				
<i>Fox Cr.</i>	<i>Wright Douglas</i>	<i>20.0 NE NE SW 20 28N 13W</i>		<i>SE NE NE</i>
<i>29 25N 13W</i>				
<i>Steins Cr.</i>	<i>Wright</i>	<i>8.0 SW SW SW 22 31N 15W</i>		<i>NW NE NE</i>
<i>22 32N 15W</i>				

<i>Elk Cr.</i> 26 32N 14W	<i>Wright</i>	4.5 NW NE NW 08 31N 14W	SW NE NE
<i>Dry Cr.</i> 17 27N 14W	<i>Wright Douglas</i>	7.5 SW NE NW 24 28N 14W	SE SW SW
<i>Prairie Hollow Cr.</i> 03 27N 15W	<i>Wright Douglas</i>	3.0 SE SW SW 2 8 28N 15W	SW SW SE
<i>Prairie Hollow Cr.</i> 03 27N 15W	<i>Wright Douglas</i>	2.0 SW NW SW 2 8 28N 15W	NE SE SW
<i>Fry Cr. and Wolf Cr.</i> 25 29N 15W	<i>Wright</i>	3.0 NW SW SW 11 28N 15W	SW NW SE

**Note: Three of the following four streams are located in areas covered by old French surveys where projections onto section/township/range are difficult to interpret and generally not useful for locational purposes. As an alternative the geographic coordinates are included. LA is latitude and LO is longitude. This method of listing would allow an easier comparison with topographic maps.]*

Table K: Site-Specific Criteria

There are no proposed or approved site-specific criteria at this time.

Parameter: Dissolved Oxygen	Daily Average Criterion	3.6 mg/L
Waterbody: East Fork Locust Creek	Daily average dissolved oxygen concentrations shall not fall below 3.6 mg/L between July 1 and September 30 as measured by a minimum of four samples collected within a 24-hour period. All measurements shall be spaced a minimum of 5 hours apart.	
Season: July – September		
Hydrology: Baseflow Conditions		
County: Sullivan	Daily Minimum Criterion	0.9 mg/L
Miles: 9.6	Daily minimum dissolved oxygen concentration shall not fall below 0.9 mg/L between July 1 and September 30 as measured by the average of three samples collected over any consecutive 6-hour period. All measurements shall be spaced a minimum of 1.5 hours apart.	
From: Mouth		
To: Section 12, T64N, R20W		

Parameter: Dissolved Oxygen	Daily Average Criterion	3.6 mg/L
Waterbody: Little East Fork Locust Creek	Daily average dissolved oxygen concentrations shall not fall below 3.6 mg/L between July 1 and September 30 as measured by a minimum of four samples collected within a 24-hour period. All measurements shall be spaced a minimum of 5 hours apart.	
Season: July – September		
Hydrology: Baseflow Conditions		
County: Sullivan	Daily Minimum Criterion	0.9 mg/L
Miles: 9.0	Daily minimum dissolved oxygen concentration shall not fall below 0.9 mg/L between July 1 and September 30 as measured by the average of three samples collected over any consecutive 6-hour period. All measurements shall be spaced a minimum of 1.5 hours apart.	
From: Mouth		
To: Section 12, T64N, R20W		

Parameter: Dissolved Oxygen	Daily Average Criterion*	4.4 mg/L
Waterbody: Sni-a-Bar Creek	Daily average dissolved oxygen concentrations shall not fall below 4.4 mg/L between July 1 and September 30 as measured by a minimum of four samples collected within a 24-hour period. All measurements shall be spaced a minimum of 5 hours apart.	
Season: July – September		
Hydrology: Baseflow Conditions		
County: Jackson	Daily Minimum Criterion*	4.0 mg/L
Miles: 3.0	Daily minimum dissolved oxygen concentration shall not fall below 4.0 mg/L between July 1 and September 30.	
From: Confluence with Horseshoe Creek, Section 21, T49N, R29W		
To: Entry of tributary carrying discharge from Blue Springs Sni-a-Bar wastewater treatment plant, Section 35, T49N, R30W		

*These criteria shall expire on October 31, 2014. After October 31, 2014, the criteria shall be as stated in Table A.

Parameter: Dissolved Oxygen	Daily Average Criterion	4.7 mg/L
Waterbody: Pike Creek	Daily average dissolved oxygen concentration shall not fall below 4.7 mg/L during summer baseflow conditions as measured by a minimum of four samples collected within a 24-hour period. All measurements shall be spaced a minimum of 5 hours apart.	
Season: July – September		
Hydrology: Baseflow Conditions		
County: Butler	Daily Minimum Criterion	2.6 mg/L
Miles: 0.1	Daily minimum dissolved oxygen concentrations shall not fall below 2.6 mg/L during summer baseflow conditions.	
From: Confluence with Main Ditch / Sec. 15, T24N, R6E		
To: Poplar Bluff Wastewater Treatment		

<i>Plant / Sec. 15, T24N, R6E</i>

<i>Parameter:</i>	<i>Dissolved Oxygen</i>	<i>Daily Average Criterion</i>	<i>4.7 mg/L</i>
<i>Waterbody:</i>	<i>Main Ditch</i>	<i>Daily average dissolved oxygen concentration shall not fall below 4.7 mg/L during summer baseflow conditions as measured by a minimum of four samples collected within a 24-hour period. All measurements shall be spaced a minimum of 5 hours apart.</i>	
<i>Season:</i>	<i>July – September</i>		
<i>Hydrology:</i>	<i>Baseflow Conditions</i>		
<i>County:</i>	<i>Butler</i>	<i>Daily Minimum Criterion</i>	<i>2.6 mg/L</i>
<i>Miles:</i>	<i>14</i>		
<i>From:</i>	<i>Confluence with Pike Creek / Sec. 15, T24N, R6E</i>	<i>Daily minimum dissolved oxygen concentrations shall not fall below 2.6 mg/L during summer baseflow conditions.</i>	
<i>To:</i>	<i>Confluence with Pike Ditch / Sec. 18, T22N, R6E</i>		

I

Table L: Total Phosphorus (TP) Criteria for Classified Lakes

Lake Ecoregion	TP Reference Value (µg/L)	TP Prediction Value (µg/L) (1)	TP 10th Percentile Reference Value for Site Specific Criteria (µg/L)
Plains	58	$a/4 + 16/b + 570/c$	20
Ozark Border	41	$15 + 740/c$	16
Ozark Highland	26	$5 + 740/c$	9

(1) Coefficients: a = percentage of watershed originally in prairie (0 to 100);
 b = hydraulic residence time in years; c = dam height in feet]

Table L: Lake Ecoregion Chl-a Criteria and Nutrient Screening Values (µg/L)

Lake Ecoregion	Chl-a Criterion	Screening Values (µg/L)		
		TP	TN	Chl-a
Plains (DWS)	25	27	567	10
Plains (AQL)	30	49	843	18
Ozark Border (DWS)	25	31	642	10
Ozark Border (AQL)	22	40	733	13
Ozark Highland (DWS)	25	24	548	10
Ozark Highland (AQL)	15	16	401	6

Table M: *[Lakes with] Site-Specific Nutrient Criteria*

Lake Ecoregion	Lake	County	Site-Specific Criteria (µg/L)		
			TP	TN	Chl-a
Plains	Bowling Green Lake	Pike	21	502	6.5
	Bowling Green Lake (old)	Pike	31	506	5.0
	Forest Lake	Adair	21	412	4.3
	Fox Valley Lake	Clark	17	581	6.3
	Hazel Creek Lake	Adair	27	616	6.9
	Lincoln Lake – Cuivre River State Park	Lincoln	16	413	4.3
	Marie, Lake	Mercer	14	444	3.6
	Nehai Tonkaia Lake	Chariton	15	418	2.7
	Viking, Lake	Daviess	25	509	7.8
	Waukomis Lake	Platte	25	553	11.0
Ozark Border	Weatherby Lake	Platte	16	363	5.1
	Goose Creek Lake	St Francois	12	383	3.2
Ozark Highlands	Wauwanoka, Lake	Jefferson	12	384	6.1
	Clearwater Lake	Wayne-Reynolds	13	220	2.6
	Council Bluff Lake	Iron	7	229	2.1
	Crane Lake	Iron	9	240	2.6
	Fourche Lake	Ripley	9	236	2.1
	Loggers Lake	Shannon	9	200	2.6
	Lower Taum Sauk Lake	Reynolds	9	203	2.6
	Noblett Lake	Douglas	9	211	2.0
	St. Joe State Park Lakes	St Francois	9	253	2.0
	Sunnen Lake	Washington	9	274	2.6
	Table Rock Lake	Stone	9	253	2.6
	Terre du Lac Lakes	St Francois	9	284	1.7
	Timberline Lakes	St Francois	8	276	1.5

Table N: Total Phosphorus Criteria in Tributary Arms of Major Reservoirs

Reservoir	Tributary Arm	Sample Site (dec. deg.)		TP ($\mu\text{g/L}$)
		Latitude	Longitude	
Ozarks, Lake of the	Grand Glaize	38.11	-92.664	26
	Gravois	38.245	-92.745	26
	Niangua	38.071	-92.822	26
Table Rock Lake	James River	36.678	-93.535	16
	Kings River	36.576	-93.596	18
	Long Creek	36.557	-93.294	12

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AUTHORITY: section 644.021, RSMo Supp. 2008 and section 644.026, RSMo Supp 2013. Original rule filed May 13, 1977, effective Dec. 11, 1977. Amended: Filed Oct. 15, 1980, effective April 11, 1981. Amended: Filed July 12, 1984, effective Dec. 13, 1984. Rescinded and readopted: Filed Aug. 4, 1987, effective Dec. 12, 1987. Amended: Filed Nov. 14, 1988, effective April 15, 1989. Rescinded and readopted: Filed Sept. 5, 1990, effective March 14, 1991. Amended: Filed Sept. 2, 1993, effective May 9, 1994. Amended: Filed Nov. 14, 1995, effective July 30, 1996. Amended: Filed March 1, 1996, effective Nov. 30, 1996. Amended: Filed March 31, 2005, effective Dec. 31, 2005. Amended: Filed Dec. 13, 2007, effective Aug. 30, 2008. Emergency amendment filed Nov. 12, 2008, effective Nov. 22, 2008, expired May 20, 2009. Amended: Filed Feb. 3, 2009, effective Oct. 30, 2009. Amended: Filed Oct. 31, 2011, effective June 30, 2012. Amended: Filed May 15, 2013, effective February 28, 2014. Amended: Filed October 2, 2017, effective June 30, 2018.*

**Original authority: 644.021, RSMo 1972, amended 1973, 2000, 2002, 2007 and 644.026, RSMo 1972, amended 1973, 1987, 1993, 1995, 2000, 2012, 2014.*

PUBLIC COST: The proposed amendment will cost public entities up to \$309,700,000 in the aggregate for the construction of wastewater treatment system upgrades. In addition, public entities will pay up to \$26,595,000 in the aggregate annually for system operation, maintenance and reporting. It is anticipated that the operation, maintenance and reporting costs will recur over the life of the rule and will vary with inflation.

PRIVATE COST: The proposed amendment will cost private entities up to \$141,200,000 in the aggregate for the construction of wastewater treatment system upgrades. In addition, private entities will pay up to \$14,581,000 in the aggregate annually for system operation, maintenance and reporting. It is anticipated that the operation, maintenance and reporting costs will recur over the life of the rule and will vary with inflation.

NOTICE OF PUBLIC HEARING AND NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Department of Natural Resources, Division of Environmental Quality, Water Protection Program, Attn: WQS Coordinator, P.O. Box 176, Jefferson City, MO 65102. Comments may also be submitted online at <https://dnr.mo.gov/proposed-rules>. Public comments must be received by January 20, 2018. The public hearing is scheduled at a meeting of the Clean Water Commission to be held at 10 AM, on October 4, 2017 at the Department of Natural Resources, Lewis and Clark State Office Building, LaCharrette/Nightingale Conference Rooms, 1101 Riverside Drive, Jefferson City, Missouri 65101.